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AN EVALUATION OF THE SUSTAINABILITY of Global Tuna Stocks Relative to Marine Stewardship Council Criteria

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An Evaluation of the Sustainability of Global Tuna Stocks Relative to Marine Stewardship Council Criteria: Principles 1 and 3

Matthew Cieri
Geir Hønneland
Paul A. H. Medley
Susan Singh-Renton

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International Seafood Sustainability Foundation

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Executive Summary

The Marine Stewardship Council (MSC) has established a program whereby a fishery may be certified as being sustainable. The sustainability of a fishery is defined by MSC criteria which are embodied in three Principles: relating to the status of the stock, the ecosystem of which the stock is a member and the fishery management system. Since many of these MSC criteria are comparable for global tuna stocks, the MSC scoring system was used to evaluate twenty-three stocks of tropical and temperate tunas throughout the world and to evaluate the management systems of the Regional Fishery Management Organizations (RFMOs) associated with these stocks. No evaluation has been made here of the fishery specific ecosystem criteria in this report. The principles that were assessed were:

- Principle 1 (P1): A fishery must be conducted in a manner that does not lead to over-fishing or depletion of the exploited populations and, for those populations that are depleted, the fishery must be conducted in a manner that demonstrably leads to their recovery, and
- Principle 3 (P3): The fishery is subject to an effective management system that respects local, national, and international laws and standards, and incorporates institutional and operational frameworks that require use of the resource to be responsible and sustainable.

Each of these Principles is evaluated in relation to Performance Indicators (PIs) within each Principle based on public information available by March 2025. The update includes changes in version 3.1 of the standard (MSC Fisheries Standard and Guidance v3.1 –22nd July 2024; http://www.msc.org/).

Table 1 summarizes the findings of this evaluation.

Of the 23 stocks of tropical and temperate tunas, 12 achieved a passing score for Principle 1. A stock will pass if its overall score is 80 or above, and no single score is less than 60. Failure was due to poor status of the stock, the lack of well-defined harvest control rules in place and the lack of effective tools to control harvest. Seven of the 23 stocks have fully implemented well-defined harvest control rules, and there has been progress towards this objective by all RFMOs. However, failure to implement controls before rebuilding is required has led to an increasing number of stocks failing to meet minimum requirements on harvest control rules. Version 3.1 of the standard has formally allowed more time for RFMOs to implement harvest control rules recognising the increased complexity when co-ordinating international action.

Additionally, under Principle 3, all RFMOs had similar weaknesses, but these varied among RFMOs (Table 1) and RFMOs score well on Principle 3 with a notable weakness in compliance. In contrast to recent previous reports, the Principle 3 scores in the 2025 version of this report have been fully evaluated and have been scored more consistently among these and other RFMOs.

While a future client tuna fishery will be evaluated on the merits related to all three MSC Principles, the scoring clearly outlines a template for actions to improve the management of the 23 tuna stocks.

Table 1 Assessment of Global Tuna Stocks using MSC P1 and P3 Criteria

P1-Atlantic Ocean ICCAT

Component	PI No.	Performance Indicator (PI)	Yellowfin Score	Bigeye Score	Western Skipjack Score	Eastern Skipjack Score	North Albacore Score	South Albacore Score	Med Albacore Score	Eastern Bluefin Score	Western Bluefin Score
Outcome	1.1.1	Stock Status	90	70	100	80	100	100	Fail	70	60
	1.1.2	Stock Rebuilding		80					60	100	80
Management	1.2.1	Harvest Strategy	80	65	75	75	95	80	60	95	95
	1.2.2	Harvest control rules and tools	Fail	65	60	60	80	60	60	80	80
	1.2.3	Information / monitoring	80	80	80	80	90	80	65	75	75
	1.2.4	Assessment of stock status	95	100	90	90	95	85	85	90	90
Weighted Principle-level scores											
	Stock rebuilding required?		**No**	**Yes**	**No**	**No**	**No**	**No**	**Yes**	**Yes**	**Yes**
		P1 Score:	**Fail**	**76.3**	**88.1**	**78.1**	**95.0**	**88.1**	**Fail**	**85.0**	**77.5**

P1-Pacific Ocean

Component	PI No.	Performance Indicator (PI)	Western Yellowfin Score	Western Bigeye Score	Western Skipjack Score	Eastern Yellowfin Score	Eastern Bigeye Score	Eastern Skipjack Score	North Albacore Score	South Albacore Score	Pacific Bluefin Score
Outcome	1.1.1	Stock Status	100	100	100	80	Fail	90	90	100	60
	1.1.2	Stock Rebuilding					80				Fail
Management	1.2.1	Harvest Strategy	75	75	80	80	75	80	70	70	80
	1.2.2	Harvest control rules and tools	60	60	75	80	80	80	Fail	60	75
	1.2.3	Information / monitoring	80	80	90	80	80	80	90	80	90
	1.2.4	Assessment of stock status	95	95	95	90	90	90	95	90	95
Weighted Principle-level scores											
	Stock rebuilding required?		**No**	**No**	**No**	**No**	**Yes**	**No**	**No**	**No**	**Yes**
		P1 Score:	**88.8**	**88.8**	**92.5**	**81.3**	**Fail**	**86.3**	**Fail**	**87.5**	**Fail**

P1-Indian Ocean

Component	PI No.	Performance Indicator (PI)	Yellowfin Score	Bigeye Score	Skipjack Score	Albacore Score
Outcome	1.1.1	Stock Status	80	70	100	100
	1.1.2	Stock Rebuilding		60		
Management	1.2.1	Harvest Strategy	65	75	85	60
	1.2.2	Harvest control rules and tools	Fail	Fail	75	Fail
	1.2.3	Information / monitoring	80	80	80	80
	1.2.4	Assessment of stock status	90	100	95	85
Weighted Principle-level scores						
	Stock rebuilding required?		**No**	**Yes**	**No**	**No**
		P1 Score:	**Fail**	**Fail**	**91.9**	**Fail**

P1-Southern Ocean

PI No.	Southern Bluefin Score
1.1.1	70
1.1.2	90
1.2.1	95
1.2.2	85
1.2.3	90
1.2.4	100
	Yes
	86.3

P3 by RFMO

Component	PI No.	Performance Indicator (PI)	ICCAT Score	WCPFC Score	IATTC Score	IOTC Score	CCSBT Score
Governance and Policy	3.1.1	Legal and/or customary	80	80	80	80	80
	3.1.2	Consultation, roles and responsibilities	85	85	85	85	85
	3.1.3	Longterm objectives	80	80	80	100	80
Fishery specific management system	3.2.1	Fishery-specific objectives	80	80	80	100	80
	3.2.2	Decision-making processes	85	85	85	85	85
	3.2.3	Compliance and enforcement	70	70	70	70	70
	3.2.4	Monitoring and management performance evaluation	80	80	80	80	100
Weighted Principle-level scores							
		P3 Score:	**80.2**	**80.2**	**80.2**	**86.0**	**82.7**

PI < 60 or Principle <80: Principle Fails
60 ≤ PI < 80: Condition Needed
PI or Principle≥80: Passing Score
Unscored
Rebuilding Required
Rebuilding Not Required

Foreword

The objective of ISSF is to continuously improve the sustainability of global tuna fisheries and the ecosystems that support them to result in those fisheries meeting, and maintaining, the MSC certification standard. We achieve this through the development and implementation of verifiable, science-based practices, measurable commitments, and conservation management measures by participating companies and advocacy to tuna RFMOs.

The MSC is a global certification program. There are over 500 fisheries in the MSC program, including 128 assessments of tuna fisheries to date that have resulted in certification under the MSC standard. ISSF has been actively involved as a stakeholder in MSC tuna fishery assessments and resulting certifications since 2011.

Through our initial involvement with MSC tuna fishery assessments, we observed that there were often significant inconsistencies among the different tuna assessments as they have been conducted by the Conformance Assessment Bodies (CABs), accredited by Assurance Services International to apply the MSC standards. The assessment scores assigned to individual sustainability indicators by CABs in what seem to be very similar situations were sometimes quite different. This could be, at least in part, due to a level of subjectivity allowed by any system. In other cases, it could be an incorrect interpretation of the standards and scoring guidance issued by the MSC.

In 2013, we decided to ask experienced MSC assessors to score tuna stocks against the MSC standards for Principle 1 and part of Principle 3 using the very same indicators of sustainability and the guideposts provided by the MSC to take a global, comprehensive approach for consistent scoring. These stocks represent all of the major commercially-exploited tuna stocks in the world. The scores are not a complete MSC assessment as they are not fishery-specific, i.e., they focus only on stock status and harvest strategies (MSC Principle 1) and the international management aspects relevant to Regional Fishery Management Organizations (RFMOs) (part of MSC Principle 3). They do not consider management in national or bilateral jurisdictions, nor gear/fleet-specific ecosystem impacts (MSC Principle 2), which are important components in any complete MSC assessment. Nevertheless, our objective was that this exercise would:

- Provide a basis for comparing between stocks scores that are assigned by the same experts;
- Become a useful source document in future tuna certifications;
- Give a "snapshot" of the current status of the stocks and the strengths and weaknesses of RFMOs.

This document has been updated several times since the initial version, adapting it to MSC standard 2.01, released in 2019 and to changing stock status and management situations. For the current update, we adapted the report to the latest version of the MSC Standard (3.1). It is not clear when this version will enter into force but we hope the report will be equally useful. Other changes are explained in the report under Score Changes.

We have noted, with satisfaction, that the document has been taken into consideration in recent Full Assessments of tuna fisheries against the MSC standards, and by Fishery Improvement Projects (FIPs) that make use of the MSC scoring principles (although we discourage CABs from considering the scores in this report without consulting the original sources; in a full assessment, much more justification would need to be provided than done here). We believe that this has helped improve consistency in assessment scoring. In addition, the document has served to identify several global shortcomings in tuna management that have led to a more consistent recognition of improvements needed in management of tuna fisheries (for example, the need for adoption of harvest control rules by tuna RFMOs).

We invite you to read *An Evaluation of the Sustainability of Global Tuna Stocks Relative to Marine Stewardship Council Criteria* by Matthew Cieri *et al.*, to track the sustainability of the major commercial tuna stocks.

Susan S. Jackson
President, ISSF

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Version

Pre-assessment Version	Date	Certification Requirements Version
1.0	February 2009	MSC FAMv2
2.0	July 2013	MSC CR 1.3
3.0	March 2015	MSC CR 2.0
4.0	December 2016	MSC CR 2.0
5.0	December 2017	MSC CR 2.0
6.0	January 2019	MSC CR 2.0
7.0	March 2020	MSC CR 2.0
8.0	February 2021	MSC CR 2.0
9.0	January 2022	MSC CR 2.0
10.0	March 2023	MSC CR 2.0
11.0	May 2024	MSC CR 2.0
12.0	June 2025	MSC CR 3.1

Introduction

The Marine Stewardship Council (MSC) has established a program whereby a fishery may be certified as being sustainable. Client fisheries apply for certification and are evaluated by independent certifying bodies according to established sustainability criteria. Once a fishery becomes certified, then they may use the MSC ecolabel and market their certified products accordingly. The sustainability of a fishery using MSC criteria is embodied in the following three Principles:

> Principle 1 (P1): A fishery must be conducted in a manner that does not lead to over-fishing or depletion of the exploited populations and, for those populations that are depleted, the fishery must be conducted in a manner that demonstrably leads to their recovery.
>
> Principle 2 (P2): Fishing operations should allow for the maintenance of the structure, productivity, function and diversity of the ecosystem (including habitat and associated dependent and ecologically related species) on which the fishery depends.
>
> Principle 3 (P3): The fishery is subject to an effective management system that respects local, national and international laws and standards and incorporates institutional and operational frameworks that require use of the resource to be responsible and sustainable.

Each of these Principles is evaluated in relation to Performance Indicators (PIs) within each Principle based on public information available by March 2025. Additionally, the MSC has established rigorous guidance for scoring fisheries. The criteria applied in this report are based on the new requirements MSC CRv3.1, which has changed from the previous version 11.0 which used CRv2.0 (MSC Fisheries Standard and Guidance v3.1 – dated 22nd July 2024; http://www.msc.org/; see *Notes on Scoring: MSC CRv3.1 and CRv2.0* below). A stock will pass if its overall score is 80 or above on each Principle, and no single score is less than 60 for any performance indicator. Note that Principle 1 relates to the status of the stocks of the fish that would receive the MSC label. It recognizes that other fisheries may be targeting or impacting the same stock of fish, and therefore the entire stock and all fisheries harvesting that stock are assessed. Principle 2 relates to the performance of the specific fishery relative to all wider ecological impacts. Principle 3 addresses governance at all appropriate levels of management: the fishery, national and international governance.

A number of tuna fisheries around the world have applied for MSC certification (http://www.msc.org/). In some cases, separate certification applications have been made by two fisheries that are targeting the same stock of fish. Additionally, tuna stocks are managed under international agreements through Regional Fishery Management Organizations (RFMOs), this being the highest level of management. Therefore, the evaluation of P1 criteria under MSC and the international aspects of P3 are independent of the particular tuna fishery that is requesting certification. This, in turn, implies that there must be consistency in P1 and P3 in relation to a specific tuna stock or a specific RFMO, regardless of the fishery that might be asking for certification. The goal of this report is to address that consistency by providing MSC P1 scores for 23 stocks of tropical and temperate tunas from around the world and MSC P3 scores for the five RFMOs.

Also, our P3 scoring only addresses aspects that are related to the RFMO at an international level. P3 scoring at the level of the fishery and at the national level is part of the MSC process and these additional requirements would be needed for MSC certification of a fishery. P3 scores may therefore be adjusted based on performance of the unit of assessment. But, unless clear justification is provided, we would expect scores for each performance indicator not to deviate much from the ones given here.

Many issues related to management are based on individual State performance. For example, monitoring control and surveillance depends on State performance since the RFMO has no direct enforcement role but coordinates international action. It is also important to note that some artisanal fisheries are exempt from many Conservation and Management Measures (e.g., east African nations, Small Island Developing States in the Pacific). Countries may also be able to submit a

reservation against a Conversation and Management Measure or simply not implement it. In each case, the effect of this will need to be assessed particularly if the unit of certification is directly affected.

This report is a pre-assessment and does not follow all full assessment procedures. Stakeholders have not been fully consulted and information on these fisheries may therefore be incomplete, although only publicly available information can be used in scoring, even in a full assessment. The MSC scoring methodology has been followed as closely as possible to indicate what likely scores would be, but scores may change in a full assessment as new information becomes available.

The report is organized by management authority: the Atlantic/Mediterranean, Western Pacific, Eastern Pacific and Indian Oceans; and by the relevant RFMOs for these Oceans (Table 2): the International Commission for the Conservation of Atlantic Tunas (ICCAT), the Inter-American Tropical Tuna Commission (IATTC), the Western and Central Pacific Fisheries Commission (WCPFC), the Indian Ocean Tuna Commission (IOTC) and the Commission for the Conservation of Southern Bluefin Tuna (CCSBT).

Table 2 Membership in Tuna RFMOs (May 2025). (M=Member, C=Cooperating non-Member, P=Participating Territory).

Country	IATTC	ICCAT	IOTC	WCPFC	CCSBT	Country	IATTC	ICCAT	IOTC	WCPFC	CCSBT
Albania		M				Marshall Islands				M	
Algeria		M				Mauritania		M			
American Samoa				P		Mauritius			M		
Angola		M				Mexico	M	M			
Australia			M	M	M	Micronesia, Fed. States of				M	
Bahamas				C		Morocco		M			
Bangladesh, P.R.			M			Mozambique			M		
Barbados		M				Namibia		M			
Belize	M	M				Nauru				M	
Bolivia	C	C				New Caledonia				P	
Brazil		M				New Zealand				M	M
Canada	M	M		M		Nicaragua	M	M			
Cape Verde		M				Nigeria		M			
Chile	C					Niue				M	
China, People's Republic of	M	M	M	M		Northern Mariana Islands, Commonwealth of the				P	
Chinese Taipei	M	C	*[1]	M	M	Norway		M			
Colombia	M					Oman			M		
Comoros			M			Pakistan			M		
Cook Islands				M		Palau				M	
Costa Rica	M	M				Panama	M	M	C	C	
Cuba		M				Papua New Guinea				M	
Curaçao		M		C		Peru	M				

Country	IATTC	ICCAT	IOTC	WCPFC	CCSBT	Country	IATTC	ICCAT	IOTC	WCPFC	CCSBT
Côte d'Ivoire		M				Philippines		M	M	M	
Ecuador	M			C		Russia		M			
Egypt		M				Samoa				M	
El Salvador	M	M		C		Senegal		M			
Equatorial Guinea		M				Seychelles			M		
European Union	M	M	M	M	M	Sierra Leone		M			
Fiji				M		Solomon Islands				M	
France	M		M	M		Somalia			M		
French Polynesia				P		South Africa		M	M		M
Gabon		M				Sri Lanka			M		
Gambia		M				St. Pierre and Miquelon (France)		M			
Ghana		M				St. Vincent and The Grenadines		M			
Grenada		M				Sudan			M		
Guam				P		Suriname		C			
Guatemala	M	M				Syria		M			
Guinea Rep.		M				São Tome and Principe		M			
Guinea-Bissau		M				Tanzania			M		
Guyana		C				Thailand			M	C	
Honduras	C	M				Tokelau				P	
Iceland		M				Tonga				M	
India			M			Trinidad and Tobago		M			
Indonesia	C		M	M	M	Tunisia		M			
Iran			M			Turkey		M			
Japan	M	M	M	M	M	Tuvalu				M	
Kenya			M			United Kingdom		M	M		
Kiribati	M			M		United States of America	M	M		M	
Korea, Rep. of	M	M	M	M	M	Uruguay		M			
Liberia	C	M	C	C		Vanuatu	M			M	
Libya		M				Venezuela	M	M			
Madagascar			M			Vietnam				C	
Malaysia			M			Wallis and Futuna				P	
Maldives			M			Yemen			M		

[1]Under the UN system, the IOTC Agreement currently inhibits the full involvement of Chinese Taipei in the Commission. However, individuals from Chinese Taipei participate in IOTC meetings as Invited Experts.

There are 23 tropical and temperate tuna stocks that are evaluated in this report. The 23 stocks and their relevant RFMOs are:

Atlantic Ocean	Pacific Ocean		Indian Ocean	Southern hemisphere
ICCAT	WCPFC	IATTC	IOTC	CCSBT
Yellowfin (YFT)	Western YFT	Eastern YFT	YFT	Southern Bluefin (SBT)[2]
Bigeye (BET)	Western BET	Eastern BET	BET	
Western Atlantic Skipjack (SKJ)	Western SKJ	Eastern SKJ	SKJ	
Eastern Atlantic Skipjack (SKJ)				
North Atlantic Albacore (ALB)	North Pacific ALB[1]		ALB	
South Atlantic Albacore (ALB)	South Pacific ALB[1]			
Mediterranean Albacore (ALB)	Pacific Bluefin (PBF)[1]			
Western Atlantic Bluefin (BFT)				
Eastern Atlantic and Mediterranean Bluefin (BFT)				

[1] Pacific albacores and Pacific bluefin are managed jointly

[2] Southern bluefin is found in the Southern Hemisphere mainly in waters between 30° and 50° S

Scores for P1 were given to each of these 23 stocks using the MSC Default Assessment Tree (http://www.msc.org/). MSC assessments have already occurred for several of the tuna stocks, but these may have used previous MSC methodologies.

MSC guidelines for Performance Indicator scores, the justifications for scores and the scores, themselves, are given. In many cases the scoring and justifications are redundant. For example, the management actions taken by an RFMO relating to a number of P1 and P3 Performance Indicators are universal to all tuna stocks under their jurisdiction. Nevertheless, we chose to include these redundancies. By doing so the report will provide a template for a "living" document that can be more readily updated as new stock assessments become available and as actions taken by the relevant RFMOs evolve.

Additionally, we used the following shading codes for the scoring key:

Scoring Key

Scoring tables are shaded to indicate the Guideposts that have been met. For example, in the table below the 60 and 80 Guideposts are met; whereas the 100 Guidepost is not.		
60 Guidepost	80 Guidepost	100 Guidepost

Notes on Scoring: MSC CRv3.1 and CRv2.0

Some of our authors in this or previous versions of the report have been involved in recent full assessments of some tuna fisheries. Where this is the case, primary scoring has been undertaken independently by one of the other authors. The assessment is independent and not based on any full assessment.

This is the first time that we have applied CR version 3.1. There are some significant changes relevant to scoring tuna species under Principle 1 and 3:

- The Evidence Requirements Framework is probably the most significant change as it affects many assessment performance indicators. It is a more comprehensive approach to evaluate the quality of the information on which the fishery management system and the MSC assessment is based. As currently defined, these requirements are strict and may not be attainable in all fisheries. In general, these evidence requirements should be implemented by individual states although they may be agreed and reported at the RFMO level. These considerations have been highlighted in the justification text below where relevant.
- There are new requirements for harvest strategies of fisheries managed by Regional Fisheries Management Organisations, such as tuna, which will need to achieve effective stock-wide harvest strategies within a set timeframe (NSC CRv3.1 Section SE). These broadly reflect what these fisheries are attempting to do anyway, such as requiring the development of harvest strategies using Management Strategy Evaluations. However, the CR is stricter on being able to demonstrate effective control and implementation, while allowing more time to develop and implement them.
- There is greater emphasis on preventing gear loss and ghost fishing. Although this is primarily a Principle 2 issue (particularly lost FADs), it still needs to be addressed for potential impact on target stocks.
- For Principle 3, monitoring, control and surveillance has updated scoring guideposts and guidance with stricter requirements for demonstrably effective systems. The compliance scoring issue has been separated out into one compliance information scoring issue, for which the Evidence Requirement Framework must be used, and a compliance outcome scoring issue, which also incorporates the former systematic non-compliance scoring issue at SG60. The updated requirements also allow for a component scoring approach which is not applied in this pre-assessment, but could lead to different scores in practice.

Stringent requirements have been placed on Principle 2, and this is arguably where the most significant impacts of the changes will occur. These include requirements to demonstrate no shark finning, low impact on ETP species and low habitat impact. These changes are relevant to tuna fisheries, but not covered in this assessment which is limited to Principles 1 and 3. The CRv3.1 was a recent update of version CRv3.0 (released 26th October 2022) which addressed specific issues almost exclusively in Principle 2. In this assessment, there are no material differences between CRv3.0 and CRv3.1.

Our scoring for some performance indicators will not be the same as for some MSC full assessments (complete or ongoing). We have not reviewed other MSC assessments or tried to justify our scores in relation to those. There are a number of reasons for the different scoring.

This document is a pre-assessment, not a full assessment. The primary role of a pre-assessment is to identify risks to a certificate, so the score may be used by stakeholders to inform decisions about entering certification over a timeframe of a year or more. This may lead to lower scores in pre-assessments as these are used to highlight potential problems and need to take into account what the situation with the fishery is likely to be over a longer timeframe. Conversely, a full assessment is based on a strict interpretation of the MSC requirements (scoring issues and guidance) at the time of scoring. In addition, some scoring guideposts require an element of subjective judgement, although CRv3.1 has attempted to reduce these in terms of evidence requirements.

As in previous reports, the scope of this assessment is also different in terms of the unit of assessment. This primarily applies to Principle 2, which is not considered here, but also to Principle 3. All P3 performance indicators are influenced to some extent by the unit of assessment definition, in particular, the flag state and the landing port state. For example, MSC guidance for 3.1.2.b states that “Teams shall interpret “local knowledge” to mean … [information sources] … that come from individuals or groups local to the fisheries …”. “Local knowledge” is therefore unlikely to be the responsibility of an RFMO to collect, but individual states should be able to submit such information. These issues have been noted in the justification text.

Score Changes

Seven stocks were updated for the new version (12.0). These changes are summarised in Table 3 and Table 4. These changes were the result of new stock assessments completed, updates to management adopted in 2024, changes to the MSC CRv3.1 compared to CRv2.0 and our new assessors. In particular, Principle 3 has been entirely re-evaluated after a number of iterations without revision (since version 8.0). This is also the first time Principle 3 has been revised by a single assessor, so the evaluation and scoring should be more consistent across RFMOs and has been calibrated for consistency with other international fisheries.

Table 3 Changes in Principle 1 scores from the previous version.

Stock	Scoring Issue	20241	20251	General Explanation
Indian Ocean Yellowfin	1.1.1.b 1.1.2.a 1.1.2.b	60 Fail 60	80 NA NA	The latest stock assessment placed the yellowfin stock above the MSY level.
Eastern Pacific Skipjack	1.1.1.a	80	100	The latest 2024 assessment determined the stock was above the MSY reference point.
Pacific Bluefin	1.1.1.a 1.1.2.b	Fail 100	60 60	The latest stock assessment indicated continued recovery and the stock is above its limit reference point. However, it is now less clear that the stock will rebuild to a target consistent with MSC requirements (interpreted as 40%B_0).
South Pacific Albacore	1.1.1.a 1.1.1.b	80 80	100 100	The most recent 2024 stock assessment indicated that the stock has been above MSY in recent years with high certainty. The previous declining trend in stock size is no longer apparent.
Indian Ocean Skipjack	1.2.1.d	80	100	The management procedure has been implemented and will be subject to further review by 2032, which is sufficient now to be considered a review and improvement of the harvest strategy.
Atlantic Yellowfin Eastern Atlantic Skipjack	1.2.4.a	80	100	There have been ongoing improvements in the stock assessments recognised in the higher score. There is no clear point when scores move from SG80 to SG100, so this is based on expert judgement.
Indian Ocean Yellowfin	1.2.4.a	100	80	The recent significant change in perception of this stock undermines the confidence in the stock assessment at this time. Some inputs to the assessment may need further review.
Western Atlantic Skipjack	1.2.4.d	100	80	The score was re-evaluated noting that more testable hypotheses are required to meet SG100, which was believed to align better with the evaluation of other stocks.
Indian Ocean Albacore	1.2.4.e	100	80	There was no evidence of external review for the latest assessment.
Western Pacific Yellowfin Western Pacific Bigeye	1.2.4.e	100	80	The previous assessment had been externally reviewed, whereas the latest 2023 assessment has not, so the SG100 was not met. This same argument applied to bigeye tuna stock assessment.

Table 4 Changes in Principle 3 scores from the previous version.

RFMO	Scoring Issue	20241	20251	General Explanation
WCPFC	3.1.1.a	100	80	It is not clear that the system will deliver management outcomes consistent with MSC Principles 1 and 2 for all times and contexts.
ICCAT	3.1.1.b	60	80	Evidence was considered sufficient to show mechanisms are effective in dealing with most issues and, importantly, are appropriate to the context of the UoA.
WCPFC	3.1.1.b	100	80	It was concluded that there is insufficient evidence that the management system has been effective in solving disputes that typically arise in international fisheries management.
CCSBT	3.1.1.c	60	80	Although not many rights are explicitly recognised, as emphasized by the previous assessment, it is argued in this assessment that the way rights are observed practically means this is sufficient evidence that such rights are observed in practice, meeting the SG80.
IOTC, ICCAT	3.1.2.a	60	80	The scoring was updated consistent with other fisheries. There were no significant changes to the fisheries themselves, although on-going work has generally led to improvements in defining tasks and who is responsible for completing them.
CCSBT	3.1.2.c	80	100	Because CCSBT actively encourages participation, the SG100 was met. This improves on previous finding that not all interested parties were necessarily attending meetings.
CCSBT	3.1.3.a	60	80	It was determined that objectives are consistent with MSC requirements, rather than that the requirements themselves are necessarily explicitly stated.
IOTC	3.2.1.a	80	100	This assessment found explicit short- and long-term objectives consistent with MSC Principles 1 and 2.
CCSBT	3.2.1.a	60	80	Explicit fishery specific objectives were found in the recent Multi-year Seabird strategy, for example, showing progress.
WCPFC	3.2.2.b	60	80	There was sufficient evidence to show that decision-making processes respond to important issues in an appropriate manner.
IOTC, ICCAT, CCSBT	3.2.2.d	100	80	The problem is primarily transparency which was not weighted as heavily in the previous assessment. Not all information is publicly available or is only available in limited detail.

RFMO	Scoring Issue	20241	20251	General Explanation
IOTC, CCSBT, WCPFC	3.2.2.e	80	100	CCSBT, IOTC and WCPFC were determined as being more proactive in avoiding legal disputes through consultative initiatives with stakeholders than previously found.
IOTC WCPFC	3.2.3.a	60 100	80 80	The scoring guideposts for 3.2.3 have changed significantly under CR3.1. Reinterpreted the MCS as a "system" at the RFMO level, noting that enforcement still depends on flag states.
IOTC, ICCAT, CCSBT	3.2.3.b	60	80	The scoring guideposts for 3.2.3 have changed significantly under CR3.1. This scoring issue was reinterpreted that flag states have and apply sanctions (e.g. IUU lists) sufficient to meet SG80.
IOTC, IATTC, ICCAT, CCSBT, WCPFC	3.2.3.c	80	60	The scoring guideposts for 3.2.3 have changed significantly under CR3.1. SG80 requires high degree of accuracy for the compliance estimates which are now difficult to achieve.
IOTC, ICCAT, CCSBT IATTC, WCPFC	3.2.3.d	100 80	60 60	The scoring guideposts for 3.2.3 have changed significantly under CR3.1. This issue mainly applies to nations/flag states. Current information on compliance rates is not available and necessary to meet SG80.
IOTC, ICCAT, WCPFC IOTC	3.2.4.a 3.2.4.b	100 100	80 80	The lack of recent performance reviews means that full review coverage and frequency have not been achieved to reach SG100.

Principle 1: Sustainable fish stocks

A fishery must be conducted in a manner that does not lead to over-fishing or depletion of the exploited populations and, for those populations that are depleted, the fishery must be conducted in a manner that demonstrably leads to their recovery.

North Atlantic Albacore

1.1 Outcome

P.1.1.1 Stock Status

1.1.1.a Stock status relative to recruitment impairment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
It is **likely** that the stock is above the point of recruitment impairment (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.

An assessment was conducted in 2023 which included data through 2021. Results, based on the Stock Synthesis assessment, indicated that the stock has recovered from biomass reductions several decades ago such that estimated biomass is greater than B_{MSY} (B_{2021}=219%B_{MSY}; 95%CI 121%-401%). The stock assessment report indicates a large uncertainty around the current stock status estimated by the model being used to determine stock status. The probability of the stock not being overfished and not undergoing overfishing in 2021 ($F<F_{MSY}$ and $B>B_{MSY}$) was 99.6%.

The agreed stock management limit reference point is 40%B_{MSY}, but there is insufficient information in reports to determine what B_{MSY} relative to unexploited stock is for the production model used, and this may not be precautionary enough to meet MSC requirements (see GSA2.2.3). However, the 80% bootstrap confidence interval still excludes a precautionary 75%B_{MSY} PRI by a wide margin. This would indicate that there is a high degree of certainty that the stock is above the PRI. SG80 and SG100 are met.

1.1.1.b Stock status in relation to achievement of maximum sustainable yield (MSY)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

Stock assessment results indicated that the stock has fully recovered such that B_{2021}=219%B_{MSY} (95%CI 121%-401%), and F_{2021}=45%F_{MSY} (95%CI 29%-71%). Maximum sustainable yield was estimated as 41995 (95%CI 38860t – 45130t), while catches in the past 10 years (2013-2023) have fluctuated between 24671t and close to 35000t. Additionally, the stock recovered from earlier reductions to reach a size >90%B_{MSY} in 2007, and stock size has been increasing since then (see GSA 2.2.2). This meets SG80.

Assuming a generation time of 8 years, the 2023 assessment indicated that the stock size was greater than B_{MSY} for at least the latest 13 years included in the assessment (2009-2021). The 2023 assessment estimated probability of the stock being above B_{MSY} and below F_{MSY} plot at 99.6%, fulfilling the "high degree of certainty" criterion. Therefore, SG100 is met.

All SG60, SG80 and SG100 were met.

PI 1.1.1 : 100

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ICCAT ALB-SAR 2023. Report of the 2023 ICCAT Atlantic Albacore Stock Assessment Meeting (including MSE) (Hybrid, 26-29 June 2023)

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1.2 Harvest Strategy (Management)

P.1.2.1 Harvest Strategy

1.2.1.a Harvest strategy design		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **expected** to achieve stock management objectives reflected in PI 1.1.1/PI 1.1.1A 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/PI 1.1.1A 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/PI 1.1.1A SG80.

ICCAT's objective is embedded in the preamble of its Convention finalised in 1966. The preamble states: "The Governments (…) considering their mutual interest in the populations of tuna and tuna-like fishes found in the Atlantic Ocean, and desiring to cooperate in maintaining the populations of these fishes at levels which will permit the maximum sustainable catch for food and other purposes". ICCAT's objective is therefore to maintain populations of tunas and tuna-like fishes at levels that will permit maximum sustainable yield (MSY).

Furthermore, Rec. 11-13 on the principles for decision making mandates that for stocks that are overfished and/or subject to overfishing (i.e., stocks not in the green quadrant of the Kobe plot), the Commission shall immediately adopt management measures designed to result in a high probability of ending overfishing and/or rebuild the stock in as short a period as possible, taking into account, *inter alia*, the biology of the stock and SCRS scientific information and advice. Accounting for stock biology facilitates the inclusion of scientific advice about the PRI addressed at P1 1.1.1a, and which is required under the v3.1 MSC Standard.

ICCAT Rec. 15-07 has the intent of facilitating adoption of Management Procedures (MPs) with associated harvest control rules for ICCAT-managed stocks, applying Management Strategy Evaluation (MSE); these MPs offer the potential for more effective management of uncertainties. This intent is further supported by ICCAT Res. 15-12 that advocates application of the precautionary approach, in accordance with the relevant international standards.

The current strategy is to limit catches to sustainable levels based on a feedback process implemented by the Commission. Scientific advice is provided and a TAC agreed using a management procedure, which therefore also includes evaluation of, and adaptation to, changing circumstances. Since 2013, the Commission has established TACs for 2014-2018 of 28000t and 30000t for 2019-2021. A management programme with harvest control rule (HCR) was accepted in 2017 (ICCAT Rec. 17-04) and extended in 2020 (ICCAT Rec. 20-04). Subsequently, an MP, including a long-term HCR, was adopted in 2021 (ICCAT Rec. 21-04). The adopted HCR was used in 2023 to amend the Total Allowable catch (TAC) (ICCAT Rec. 23-05). Based on the HCR, the recommended TAC for the period 2021-23 was 37801t and for 2024-2026 47251t. Rec. 21-04 also lays out a fuller procedure for establishing TACs, including exceptional circumstances and performance metrics to be considered in decision making.

Given these actions, fishing mortality rates have been reduced over the last decade, responding to the perceived status of the stock. There are clear objectives to maintain the stock around the MSY biomass, and the harvest strategy elements are working together to achieve this. The inclusion of the 'exceptional circumstances protocol' allows for the MSE and MP to be revisited, based on identification of changes in the supporting science and fishery performance information, giving an added element of precaution that should help to maintain the stock size at target levels and above the agreed biomass limit reference point with a high likelihood. The strategy meets SG80.

For the current strategy, the work has shifted from design to evaluation. Work has included further development of the stock assessment model, and testing management procedure (MP) variants such as alternative reference points, CPUE series used, TAC implementation error, interannual TAC variability and on the detection of "exceptional circumstances". The harvest strategy is now being implemented (Rec. 23-05). The suitability of the choice of the agreed biomass limit reference point of 40%B_{MSY}, fulfilling the MSC requirements of a PRI, would be expected to be included in future review and evaluation of the HCR performance.

Given the recent work, the ongoing MSE programme and the shift to evaluating the relevant components of the current strategy, there is evidence that the process is designed to achieve management objectives consistent with at least PI 1.1.1 SG80, so SG100 is met.

1.2.1.b Harvest strategy evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **likely** to work based on prior experience or plausible argument.	The harvest strategy has been **tested** and is expected to meet the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80 or there is evidence that the harvest strategy is achieving its objectives reflected in PI 1.1.1/ PI 1.1.1A SG80.	The performance of the harvest strategy has been **evaluated** and evidence exists to show that it is achieving the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80, including being clearly able to maintain stocks at target levels.

The latest estimate of the maximum sustainable yield is around 42000t. Catches during 2011-18 have mainly fluctuated around 26000t, rising close to 35000t in 2019 and then decreased slightly with an average of around 30600t during 2020-2023. The TACs were established with an objective of recovery of the stock to B_{MSY}. Now recovery has been achieved, the agreed management procedure has recommended a higher total overall catch limit of 47251t (ICCAT Rec. 23-05), based on the 2023 assessment and estimation of stock size.

The approach to management is clearly improving and evidence that it will continue to work is increasing. Based on recent stock assessments, there is evidence that objectives are being achieved. The objective is to maintain the stock in the green area of the Kobe plot with a 60% probability while maximizing long-term yield and, if $B<B_{MSY}$, to recover it as soon as possible, while maximizing

average catch and minimizing inter-annual fluctuations in TAC levels. From the 2023 assessment, the relative abundance of North Atlantic albacore has continued to increase over the last decade and is estimated to be in the green area of the Kobe plot with 99.6% probability.

The available evidence indicates that the harvest strategy has been tested through MSE, and the relevant information is being used to inform achievement of its objectives, meeting SG80.

However, there need to be further evaluations of the stock status to confirm these expectations, and in particular, to consider wider circumstances that the current strategy has not encountered yet. To this end, a work programme is planned to 2026 including development of checks for the existence of exceptional circumstances on a yearly basis. The 2023 benchmark assessment should form the basis for new operating models for the second round of the MSE framework, expected to be delivered in 2026, which could lead to further adaptation of the harvest strategy. This indicates that the long-term harvest strategy has not yet been fully evaluated, so SG100 has not been met.

1.2.1.c Harvest strategy monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Monitoring is in place that is expected to determine whether the harvest strategy is working.		

Monitoring is adequate to determine whether the harvest strategy is working. The strategy consists of limiting catches to maintain fishing mortality at or below the MSY level and biomass above or around the MSY level. Data are collected to estimate suitable quantities in the stock assessment, which indicates whether management is achieving its objectives or not. The fishery clearly meets SG60.

1.2.1.d Harvest strategy review		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The harvest strategy is periodically reviewed and improved as necessary.

There is no evidence of any formal external review of the overall harvest strategy, but there has been on-going internal review and clear improvements of the harvest strategy. In 2021, a new management procedure was adopted, ICCAT Rec. 21-04 (updated by ICCAT Rec. 23-05 that extended it through 2026), that repealed and replaced ICCAT Recs. 16-06, 17-04, 20-03 and 20-04. The management procedure was agreed using management strategy evaluations that tested alternative strategies, among other things, and shows clear improvements in this regard. The recommendation includes not only the harvest control rule, but a management procedure for updating catch limits, special provisions for unusual circumstances and a wider list of performance indicators to be considered in decision-making. With demonstrable clear improvements resulting from a continual review process, the fishery meets SG100.

1.2.1.f Review of alternative measures		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There has been a review of **alternative measures** to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **review** every 5 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock and they are implemented as appropriate.	There is a **review** that happens every 2 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock, and they are implemented, as appropriate.

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. Under v3.1 of the MSC Standard, this must include measures regarding unwanted catch of the target species by ghost gear.

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.

A 2009 review and survey of ghost gear fishing of target species indicated a relatively low impact for longline and purse seine gear, although ghost fishing information on these gears was limited. It is reasonable, therefore, to assume that this statement remains applicable and that the main issue would arise from lost FADs associated with purse seine fishing. This review also considered preventative measures.

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). Quantification of discards generally depends upon the presence of at-sea observers, and observer coverage has generally been increasing. Discarding of target tunas has been considered low risk to the fisheries compared to other concerns.

Incorporating estimates of discards in catch estimates and the stock assessment amounts to a review of discards generally, but the scoring guideposts require a review of “measures” to minimise discarding of the target stock rather than a review of discarding itself. Whether discards are significant enough to require a review to work out how to reduce them would need to be determined on a case-by-case basis. The nature and frequency of reviews for the effects of ghost fishing is much lower than for discards (see MSC Standard Version 3.1, SA2.4.5.1 and SA3.7.2.3). Nevertheless, while ghost fishing (e.g., lost FADs) may be significant risk to bycatch and ETP species, it is unlikely that they cause any significant mortality to the target tuna species as they either do no capture tuna (FADs) or are designed to require active fishing (purse seine nets, longline). Exceptions for some fisheries, like gillnets, might still apply, and national reviews might be required for these gears, particularly for ghost fishing.

For the purposes of scoring this issue here, estimation of discarding and evidence of response is used to indicate a review (i.e., considering levels of discard and by extension its reduction where possible).

While bycatch and discarding have been monitored, it is less clear what management actions, if any, have been undertaken to reduce discards of tuna in the ICCAT region. In response to the joint meeting of tRFMOs in 2019, a management measure was adopted with the intent of reducing discards primarily by the Atlantic tropical tuna purse seine fishery, but the review of this measure has been limited by data and reporting issues (ICCAT SCRS 2022).

There is no evidence of a formal review of measures to prevent discarding at the RFMO level, and to minimise all other UoA-related mortality of unwanted catch of the target stock. If such a review is required it would have to be done at the national level.

Discarding of target tunas by gears apart from purse seine, which does not target albacore, is thought to be low. In 2024, the working group examined and documented the data on both dead and live discards (north, south, and Mediterranean) (ICCAT ALB SAR 2024). However, the nature and extent of the problem are unclear, in terms of any required alternative measures. Ghost fishing impacts by longline fisheries are also considered low.

Therefore, this issue is not scored because while discarding itself is monitored and reviewed, available evidence indicates neither that discarding is significant nor have opportunities to reduce unwanted mortality been identified.

All SG60 and SG80 were met, and 2 out of 3 SG100 were met.

PI 1.2.1 : 95

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P.1.2.2 Harvest control rules and tools

1.2.2.a HCRs design and application		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
HCRs are **expected to reduce the exploitation rate as the PRI is approached** and are either **generally understood** and **in place**, or **available**.	**Well-defined** HCRs **are in place** that **ensure** the exploitation rate is reduced as the PRI is approached, and are expected to keep the stock **fluctuating around** a target level consistent with (or above) MSY, or for key LTL species at levels 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**.

A well-defined HCR was agreed in 2017 and has been in place for 2018 onwards.

There is a decision-framework (Rec. 11-13) which meets MSC requirements. Commission requested SCRS to identify a limit reference point for northern albacore (Rec. 11-04). Management advice has been provided based on projections making use of Harvest Control Rule options consistent with the policies identified in Rec. 11-13 and using an interim biomass limit of 40%B_{MSY}. Commission Rec. 15-04, 15-07 & 16-06, have tasked SCRS with evaluating candidate HCRs through Management Strategy Evaluations process, which was completed in 2017. The generic HCR itself is set out in Rec 16-06 and after a number of interim updates, was finalised in 21-04 (amended by Rec. 23-05). It sets out target

exploitation rate and exploitation rate reductions as the agreed PRI is approached. The HCR intends to keep the stock at or above the MSY level. Because the HCR is well-defined and in-place, and has a target consistent with MSC requirements, it meets SG80.

In 2018, an external peer review was conducted, and it confirmed that, overall, the MSE framework appears to be scientifically sound and robust to uncertainty. Thus, the interim HCR adopted by the Commission in 2017 had a robust scientific basis. The working group has completed considerable work since 2018 to improve the MSE framework used in the evaluation of HCRs based on the recommendations of the external review and stakeholder consultation. In 2023, the working group agreed on elements for inclusion in a new MSE framework to inform a new MP by 2026. At this point, it is not clear that the HCR will take account of the ecological role of the stock and the current operating model is a single species model. While the available evidence suggests the HCR will keep the stock at or above MSY most of the time, it has not been in place long, and development of a new MSE framework is ongoing. Hence, the current HCR is not necessarily the long-term plan and the work programme reviewing its performance is incomplete, so SG100 is not met.

1.2.2.b The robustness of HCRs to uncertainty		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

A well-defined HCR is now in-place. Management Strategy Evaluations have been used to develop and test the HCR, which was completed in 2017. The HCR itself is set out in Rec. 21-04 (amended by Rec. 23-05). It sets out target exploitation rate and exploitation rate reductions as the PRI is approached. In 2018, an external peer review was conducted, and it confirmed that, overall, the MSE framework appears to be scientifically sound and robust to uncertainty (Scully 2018). Therefore, SG80 is achieved.

Development of a new HCR has been through an extensive MSE process, which has tested candidate HCRs through simulation and is designed to achieve probabilistic management objectives. Although the HCRs have been shown to be robust to a wide range of uncertainties, including some potential impacts of climate change (Merino et al. 2019, 2020), these have not included yet the ecological role of the stock as might be addressed in a full ecosystem model. Therefore, although simulations support the robustness of the HCR, not all uncertainties have been evaluated yet as demonstrated by the work programme with another MSE cycle to be completed in 2026. In addition, the ecological role of the stock will need to be considered in some form to meet the SG100.

1.2.2.c Evaluation of HCRs		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

The current level of control has resulted in sustainable catch levels for northern albacore leading to recovery of the stock. This amounts to some evidence that the harvest control rules are appropriate and effective, meeting SG60. There are various weaknesses. Based on data updated provided in 2024, the total annual catch exceeded the established TAC during 2016-2018 by about 5%, and also during 2019-2021 by about 8%. Since then, catches have averaged 30000t in 2022-2023, about 80% of the TAC for that period (=37801t). In 2021, the working group reviewed the situation of catch levels and indicated that the MSE had been tested for catch exceeding the TAC by up to 20%. Hence, at that time, working with proposed indicators for an 'Exceptional Circumstances Protocol', the working group accepted that the catch levels did not trigger an exceptional circumstance. In addition, the latest assessment had indicated that fishing mortality relative to the MSY level was low, about 10%, which was the level to be applied when the stock was at the limit reference point. Hence, arguably, there was no need to adjust the management response required by HCR application.

A new more robust management procedure has been proposed for 2024-2026 (ICCAT Recs. 21-04 and 23-05), which include application of an 'Exceptional Circumstances Protocol'. Precise control over the TAC is difficult because it is shared among many countries and there is the practice of allowing the carry-forward of uncaught allocations.

Given that the HCR is designed to cope with TAC implementation uncertainty, the available evidence indicates the TAC setting is appropriate and effective in achieving the target exploitation rates, meeting SG80.

While in theory the tools are adequate, clear evidence of control is limited. This would probably require evaluation of the HCR performance over a number of years in practice, so the SG100 cannot be met at this time.

All SG60 and SG80 were met, and 0 out of 3 SG100 were met.

PI 1.2.2 : 80

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P.1.2.3 Information / monitoring

1.2.3.a Range of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

Although data have been generally poor and ICCAT has had considerable problems in maintaining accurate data in its database, there have been significant improvements over time. There was adequate information on stock structure, productivity and the fleets to allow a full stock assessment to be completed. Furthermore, there is evidence that on-going research is planned to improve

information and therefore the stock assessment indicating on-going development of data collection is adequate to detect and remove problems.

The Albacore Species Group has recommended studies for North and South stocks on ageing, fecundity and maturity and improvements in tagging research. Sources of errors in data collection are being investigated, leading to further directed research to reduce them. Ageing errors have been estimated and greater standardization on the approach to improve precision has been recommended. Further evidence of on-going improvement is the updating of albacore catch-at-size data and methods used to convert from size to age. There is a multiyear research programme in place which is currently focused on obtaining knowledge to reduce risks, particularly related to recovery if the stock is reduced to around the limit reference point, which depends upon reproductive output at low stock levels, which depends upon the stock-recruitment model. This information is important for the northern Atlantic stock MSE development process which is taking place 2023-2025.

Information is clearly sufficient for the harvest strategy and therefore meets the SG80. However, there is considerable environmental data not directly used in the current harvest strategy, and there is evidence that environmental variability has a notable impact on albacore biology and ecology. Also, various data on age and abundance are limited and understanding of the population dynamics is incomplete. These gaps are recognized and, although there have been improvements, the Working Group made several recommendations with respect to information which would improve the assessment. Perhaps most obviously, the procedures to be applied under exceptional circumstances that will complete the harvest strategy for northern albacore, require additional information provided by the current research programme. With the gaps in information, the fisheries do not meet SG100. With successful completion of the data collection programme and subsequent MSE evaluation for northern albacore by 2025, the information on the data and uncertainties may be comprehensive by then, to allow this fishery to meet SG100.

1.2.3.b Monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Stock abundance and UoA removals are monitored and **at least 1 indicator** is available and monitored with sufficient frequency to support the harvest strategy.	Stock abundance and UoA removals are **regularly monitored at a level of accuracy and coverage consistent with the harvest strategy**, and **1 or more indicators** are available and monitored with sufficient frequency to support the harvest strategy.	**All information** required by the harvest strategy is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent **uncertainties** in the information (data) and the robustness of assessment and management in dealing with this uncertainty.

Monitoring indices are adequate for the current harvest control rule. Indicators of stock abundance consist of standardized catch-per-unit-effort indices. Given the large areas of ocean and dispersal of the species, dedicated surveys are not an option for this type of fishery. A single consistent index was not available for the entire time series. The five combined CPUE indices were considered adequate to include in the 2023 stock assessment and present a consistent picture of the changes in abundance that have occurred, although there are some significant differences among indices. Recommendations have included improved understanding of CPUE and population biology for this species. Information is sufficient to support a reliable stock assessment.

The accuracy and coverage of the monitoring program is adequate for a harvest control rule, and available indicators would also support better defined rules based on fishing mortality and biomass estimates. Therefore, the fisheries meet SG80.

There is clearly ongoing data collection and research, so judgement is required to decide at what point “all” information is available for the harvest control rule. The recent data collection programme covered reproduction necessary for better estimation of dynamics at low stock sizes, and tagging information on habitat use. The former is particularly important for the harvest control rule, but data were successfully collected in 2023. Other work planned is either lower priority or primarily modelling work (such as the observation error modelling of CPUE series) and preparation of further management strategy evaluations (MSE). Given previous MSE work already provides good understanding of inherent uncertainties and that further data collection (as opposed to analysis of the available data) is now considered lower priority, all necessary information is now available and data are no longer a constraint on HCR development, so the fisheries meet SG100.

1.2.3.c Comprehensiveness of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	There is good information on all other fishery removals from the stock.	

ICCAT has put considerable effort in getting countries to record and report catches. Electronic data forms were updated in 2023 to facilitate improved data collection, and the accompanying data automation processes were also improved. ICCAT prepares an annual report to assist scientists to identify where there may be gaps in catch reporting by species and country. The current level of reporting faces challenges given the number of small and/or developing countries involved with variable capacities, and difficulties in monitoring small vessels and activities in oceanic waters well away from the coast. This illustrates the on-going problems ICCAT faces with the contracting parties. Nevertheless, catches are recorded increasingly well with decreasing IUU fishing activity, and data are sufficiently well recorded in the most part for the stock assessment and for assessing the level of control sought by ICCAT over landed catches. This meets SG80.

All SG60 and SG80 were met, and 1 out of 2 SG100 were met.

PI 1.2.3 : 90

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P.1.2.4 Assessment of stock status

1.2.4.a Appropriateness of assessment to stock under consideration		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment is appropriate for the stock and for the harvest strategy.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.

Various stock assessment models and software have been applied in the past. The methods and model structures are generic but are structured to take advantage of the available data. Available software includes a variety of methods also used in other tuna fisheries and for other national stocks (including VPA, Stock Synthesis and Multifan-CL). Building on the modelling done in the past, the 2016 assessment focused on biomass dynamic modelling methods as being simpler to use and the biomass dynamic modelling approach is being tested in the MSE. This exact same procedure was used in the 2020 update.

In 2023, two modelling approaches were carried out. A Stock Synthesis (SS v3.3) one-area, one-sex, annual time-step model for the North Atlantic albacore stock for the period 1930 to 2021 was carried out in 2023. A total of 15 fleets (i.e. selectivities) and 8 abundance indices were considered. Life history model parameters are specific to the stock and/or species and have been derived from fitting stock assessment models or other independent research. In 2016, 2020 and 2023, the stock was assessed using a simpler biomass dynamics model. For the most recent stock assessment, it provided a useful contrast to the SS model as well as a continuity reference. The stock assessment has not been carried out frequently, but the updates from 2016 to 2023, given the stock has recovered, is consistent with the current harvest objectives.

The plan is to move the operating model in the management strategy evaluations (MSE) to the SS software platform, so the recent stock assessment fit is an important step in this direction. In common with many tuna management procedures, the decision rule is based on a biomass dynamics model fit.

Because the biomass dynamics model has been tested in the MSE, it is clearly appropriate for the stock and harvest control rule, and as a result meets SG80. The SS model fit is independent of the biomass dynamics model and accounts for important features of the species biology and the fishery. Given both methods are being used to monitor the stock and management procedure performance, SG100 is met.

1.2.4.b Assessment approach		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.	

The stock assessments have been used to estimate the MSY-related reference points, and these have been used to determine stock status. This meets SG80.

1.2.4.c Uncertainty in the assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The assessment **identifies major sources** of uncertainty.	The assessment **takes uncertainty into account**.	The assessment evaluates stock status relative to reference points in a **probabilistic** way.

All ICCAT stock assessments attempt a probabilistic approach which is subsequently used, where there is sufficient information, to give management advice in the form of risk (projection tables and Kobe plots). Therefore, there is an argument that all assessments, where this is achieved, meet SG100. However, we have applied judgement whether the probabilities are really being estimated and whether probabilities are reported in a form suitable for decision making, such as in risk tables.

In recent years, a number of different models have been used in describing the Northern albacore stock. Additionally, sensitivity analyses are routinely conducted covering the main uncertainties in the model structures and assumptions. The biomass dynamics model assessment is stochastic, and advice is provided which is explicitly probabilistic, although the probabilities are based on bootstrapping, which primarily accounts for observation error. Decision tables are provided for various target fishing mortality and TAC levels, with probabilities that targets will be reached for projected years. Uncertainty has been explicitly considered in assessments throughout the MSE process developing the HCR. Because there is clear evidence that consideration of risk is provided for management decision making, SG100 is met.

1.2.4.d Evaluation of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.

A wide range of alternative software has been applied to the available data in past assessments. This has resulted in two approaches: a simpler biomass dynamics model and more complex integrated model (SS). The MSE testing has shown that advice based on the biomass dynamics model should be robust to a wide range of uncertainties and so, with many alternative assessment approaches and alternative hypotheses considered in the past, SG100 is met.

1.2.4.e Peer review of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment of stock status is subject to peer review.	The assessment has been **internally and externally peer** reviewed.

The stock assessment is subject to review through a working group process. SCRS meet annually and review models, data and research on the main tuna species as well as other species within ICCAT jurisdiction, meeting SG80. Although the North Atlantic albacore MSE has been peer reviewed, there has been no evidence of external review of the recent assessments, so SG100 is not met.

All SG60 and SG80 were met, and 3 out of 4 SG100 were met.

PI 1.2.4 : 95

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South Atlantic Albacore

1.1 Outcome

P.1.1.1 Stock Status

1.1.1.a Stock status relative to recruitment impairment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
It is **likely** that the stock is above the point of recruitment impairment (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.

The most recent assessment for the southern stock of albacore was conducted by SCRS in 2020. The median estimate of stock size indicated that the South Atlantic albacore stock (B_{2018}) was approximately 158%B_{MSY} (95%CI 114%-205%), which is highly likely to be above the point of recruitment impairment (PRI), the default value for this being 54%B_{MSY} (20%B_0) in this case because B_{MSY}<40%B_0 (GSA2.2.3).

Catches in 2019 and 2020 were 15478t and 18084t respectively, below the TAC of 24000t and below the lower 95%CI bound (23734t) for the MSY. The catch in 2021 was estimated to have risen to 24968t, just above the TAC. The TAC has been increased to 28000t for 2023-2026 in view of the positive stock status of not being overfished and with no overfishing (99.4% probability), and estimations that indicated that catch around the MSY level would maintain the stock biomass above B_{MSY} and fishing mortality below F_{MSY} with a 98% probability at least until 2026 when a new assessment is planned. Therefore, there is a high degree of certainty that the stock is above the PRI, meeting SG100.

1.1.1.b Stock status in relation to achievement of maximum sustainable yield (MSY)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

The median estimate of stock size indicated that B_{2018} =158%B_{MSY} (95%CI 114%-205%) and F_{2018} was 40%F_{MSY} (95%CI 28%-59%). Since 2004, catches have been below the estimated MSY level of 27264t (95%CI 23734-31567t). In recent years, catches have been lower than the TAC level only since 2013. This has contributed to stock recovery whereby the stock is at or fluctuating around B_{MSY}. This meets SG80. In addition, because the lower bound of the 95%CI of biomass is above MSY level, there is a high degree of certainty (>95% probability) the stock is fluctuating around or above MSY in recent years, which is further supported by the time series of stock biomass generated by the assessment that indicated that the median stock biomass value has been above B_{MSY} between 2009 and 2018 (equivalent to 1 generation time for SALB= 8 years). This meets SG100.

All SG60, SG80 and SG100 were met.

PI 1.1.1 : 100

References

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1.2 Harvest Strategy (Management)

P.1.2.1 Harvest Strategy

1.2.1.a Harvest strategy design		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **expected** to achieve stock management objectives reflected in PI 1.1.1/PI 1.1.1A 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/PI 1.1.1A 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/PI 1.1.1A SG80.

ICCAT's objective is embedded in the preamble of its Convention finalised in 1966. The preamble states: "The Governments (…) considering their mutual interest in the populations of tuna and tuna-like fishes found in the Atlantic Ocean, and desiring to cooperate in maintaining the populations of these fishes at levels which will permit the maximum sustainable catch for food and other purposes". ICCAT's objective is therefore to maintain populations of tunas and tuna-like fishes at levels that will permit maximum sustainable yield (MSY).

Furthermore, Rec. 11-13 on the principles for decision making mandates that for stocks that are overfished and/or subject to overfishing (i.e., stocks not in the green quadrant of the Kobe plot), the Commission shall immediately adopt management measures designed to result in a high probability of ending overfishing and/or rebuild the stock in as short a period as possible, taking into account, *inter alia*, the biology of the stock and SCRS scientific information and advice. Accounting for stock biology facilitates the inclusion of scientific advice about the PRI addressed at P1 1.1.1a, and which is required under the v3.1 MSC Standard.

ICCAT Rec. 15-07 has the intent of facilitating adoption of Management Procedures (MPs) with associated harvest control rules for ICCAT-managed stocks, applying Management Strategy Evaluation (MSE); these MPs offer the potential for more effective management of uncertainties. This intent is further supported by ICCAT Res. 15-12 that advocates application of the precautionary approach, in accordance with the relevant international standards.

The current strategy is to limit catches to sustainable levels based on a feedback process implemented by the Commission. Scientific advice is provided and a TAC agreed through this process, which therefore also includes evaluation of, and adaptation to, changing circumstance. There are also intentions to reduce bycatch of bigeye tuna in some gears and limits on overall fishing capacity. The TAC is set at the median level which stock projections indicate that biomass will continue to increase based on the objective of 60% probability being in the "green zone" ($B>B_{MSY}$,

$F<F_{MSY}$), demonstrating that the strategy is responsive to the status of the stock. A review of the TAC in 2021 and 2022 resulted in only minor adjustments, noting that catches of South albacore are well below the current TAC but that some catch reporting may be incomplete and not in full conformity with SCRS requirements. The 2016 performance review suggested the fishery management was not consistent with ICCAT'S objective; this may have been related to the fact that the SCRS noted in 2013 that a catch of 24000t (the adopted TAC) would give a >50% probability of the stock being in the green quadrant only after 2020. From 2016 onwards, the harvest strategy has paid improved attention to the SCRS probability advice. The TAC for 2017-2020 (24000t) gave a 63% probability by 2020 that the stock would be in the green quadrant by 2020. The TAC of 24,000t was extended through 2021-2022, in view of disruptions suffered during the COVID-19 pandemic, and mindful that that the annual catch, although incomplete, was less than the TAC. Following the 2020 assessment that showed stock recovery beyond MSY levels, the TAC was increased to 28000t for 2023-2026, at a level that gave 83% probability of the stock being in the green quadrant until 2033. Hence, in recent years, the harvest strategy has been responsive, with consideration of catch levels and TAC working together to meet the agreed objective that should also ensure that the stock remains well above the PRI. This meets SG80.

However, the strategy is relatively imprecise and, focused only on catch, lacks a range of components including defining an appropriate mix of capacity by gear types, and objectives have not been clearly set out, which could impact transparency and consistency of actions. So, it cannot be considered designed and therefore does not meet SG100.

1.2.1.b Harvest strategy evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **likely** to work based on prior experience or plausible argument.	The harvest strategy has been **tested** and is expected to meet the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80 or there is evidence that the harvest strategy is achieving its objectives reflected in PI 1.1.1/ PI 1.1.1A SG80.	The performance of the harvest strategy has been **evaluated** and evidence exists to show that it is achieving the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80, including being clearly able to maintain stocks at target levels.

The stock trajectory according to the stock assessment does suggest that the stock has recovered and is not overfished. This provides some evidence that the harvest strategy has worked. The Commission has shown a willingness to reduce the TAC in line with scientific advice. Monitoring is in place and the available evidence indicates that the harvest strategy is achieving its objectives, meeting SG80.

The approach to management appears somewhat ponderous and evidence that it will continue to work is limited, but building.

The system requires re-evaluation and resetting the TAC through Commission recommendations which must be accepted by the contracting parties on each occasion. There is no pre-agreement on how to react to stock changes, and the next stock assessment is not until 2026. Importantly part of the recovery has probably come about because catches have been well below the TAC, which has not confirmed that the TAC is being set at an appropriate level.

Because the harvest strategy has only been considered in fairly narrow terms (total catch), has not yet considered wider context of the fishery, and no evaluation has been conducted concerning the perfect implementation of the TAC since 2004, SG100 is not met.

1.2.1.c Harvest strategy monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Monitoring is in place that is expected to determine whether the harvest strategy is working.		

Monitoring is adequate to determine whether the harvest strategy is working. The strategy consists of limiting catches to maintain fishing mortality at or below the MSY level and biomass above or around the MSY level. Data are collected to estimate suitable quantities in the stock assessment, which indicates whether management is achieving its objectives or not. The fishery clearly meets SG60.

1.2.1.d Harvest strategy review		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The harvest strategy is periodically reviewed and improved as necessary.

The SCRS Working Group conducts a review of the statistics and science supporting each new assessment and also reviews the effect of current management regulations, as needed. However, there is no evidence of any formal review of the overall harvest strategy. Although the harvest strategy is reasonable, there is inadequate information available to indicate what improvements might be possible. The ICCAT performance reviews did specifically address future harvest strategies, but focused on past performance of ICCAT in meeting its objectives. Improvements to the harvest control rule and development of procedures through management strategy evaluations to test alternative strategies do indicate improvements in this regard, and it is possible that the current ICCAT processes could meet SG100 in future, but clearer evidence for real improvements is still required, particularly for yellowfin and bigeye. It is worth noting that development of management strategy evaluation is progressing for bigeye tuna, yellowfin tuna, and the eastern stock of skipjack tuna, and a final Management Procedure for western Atlantic skipjack is expected to be concluded in late 2025. At this stage, the fisheries do not meet SG100.

1.2.1.f Review of alternative measures		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There has been a review of **alternative measures** to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **review** every 5 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock and they are implemented as appropriate.	There is a **review** that happens every 2 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock, and they are implemented, as appropriate.

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. Under v3.1 of the MSC Standard, this must include measures regarding unwanted catch of the target species by ghost gear.

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.

A 2009 review and survey of ghost gear fishing of target species indicated a relatively low impact for longline and purse seine gear, although ghost fishing information on these gears was limited. It is reasonable, therefore, to assume that this statement remains applicable and that the main issue would arise from lost FADs associated with purse seine fishing. This review also considered preventative measures.

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). Quantification of discards generally depends upon the presence of at-sea observers, and observer coverage has generally been increasing. Discarding of target tunas has been considered low risk to the fisheries compared to other concerns.

Incorporating estimates of discards in catch estimates and the stock assessment amounts to a review of discards generally, but the scoring guideposts require a review of “measures” to minimise discarding of the target stock rather than a review of discarding itself. Whether discards are significant enough to require a review to work out how to reduce them would need to be determined on a case-by-case basis. The nature and frequency of reviews for the effects of ghost fishing is much lower than for discards (see MSC Standard Version 3.1, SA2.4.5.1 and SA3.7.2.3). Nevertheless, while ghost fishing (e.g., lost FADs) may be significant risk to bycatch and ETP species, it is unlikely that they cause any significant mortality to the target tuna species as they either do no capture tuna (FADs) or are designed to require active fishing (purse seine nets, longline). Exceptions for some fisheries, like gillnets, might still apply, and national reviews might be required for these gears, particularly for ghost fishing.

For the purposes of scoring this issue here, estimation of discarding and evidence of response is used to indicate a review (i.e., considering levels of discard and by extension its reduction where possible).

While bycatch and discarding have been monitored, it is less clear what management actions, if any, have been undertaken to reduce discards of tuna in the ICCAT region. In response to the joint meeting of tRFMOs in 2019, a management measure was adopted with the intent of reducing discards primarily by the Atlantic tropical tuna purse seine fishery, but the review of this measure has been limited by data and reporting issues (ICCAT SCRS 2022).

There is no evidence of a formal review of measures to prevent discarding at the RFMO level, and to minimise all other UoA-related mortality of unwanted catch of the target stock. If such a review is required it would have to be done at the national level.

Discarding of target tunas by gears apart from purse seine, which does not target albacore, is thought to be low. In 2024, the working group examined and documented the data on both dead and live discards (north, south, and Mediterranean) (ICCAT ALB SAR 2024). However, the nature and extent of the problem are unclear, in terms of any required alternative measures. Ghost fishing impacts by longline fisheries are also considered low.

Therefore, this issue is not scored because while discarding itself is monitored and reviewed, available evidence indicates neither that discarding is significant nor have opportunities to reduce unwanted mortality been identified.

All SG60 and SG80 were met, and 0 out of 3 SG100 were met.

PI 1.2.1 : 80

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P.1.2.2 Harvest control rules and tools

1.2.2.a HCRs design and application		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
HCRs are **expected to reduce the exploitation rate as the PRI is approached** and are either **generally understood** and **in place**, or **available**.	**Well-defined** HCRs **are in place** that **ensure** the exploitation rate is reduced as the PRI is approached, and are expected to keep the stock **fluctuating around** a target level consistent with (or above) MSY, or for key LTL species at levels 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**.

There is a harvest control rule in place but it is not well-defined and does not include a specific plan of control if the stock size falls below the maximum sustainable yield level. The intention inferred from the scientific advice and management response is to maintain the stock at or above the MSY level by maintaining the catch rates at or below F_{MSY}. Therefore, the "generally understood" HCR is to set catches low enough that the stock rebuilds to B_{MSY}, and subsequently set future catches so that the stock remains at this level. Precisely how this is done is unclear and how TACs are set, taking into account various uncertainties, is not defined. The HCR has not been tested in projections as it is too vague. Fixed catches have been tested in projections, but this does not meet requirements of an MSC harvest control rule. MSE work and development of HCRs for the Atlantic tropical tuna stocks are in progress, but not yet completed. First steps towards a MSE for southern Atlantic albacore have been taken (Res. 24-09), although a decision on final management objectives for incorporation into an MP is not expected until 2029. Northern Atlantic albacore has a well-defined HCR in place showing ICCAT's intent and progress on this issue.

Adjustments in the TAC and management measures if the stock came under increased pressure are available, as demonstrated through the implementation of catch limits to countries (Rec. 22-06). This meets SG60.

1.2.2.b The robustness of HCRs to uncertainty		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

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. The stock assessment does report probabilistic outcomes for various fixed catches and fishing mortalities, but this is not consistent with an MSC HCR. Therefore, SG80 is not achieved.

1.2.2.c Evaluation of HCRs		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

The current level of control has resulted in sustainable catch levels for southern albacore leading to recovery to B_{MSY}. There is evidence of TAC adjustment in response to scientific findings. The lower TAC during 2012-2022 was supported also by a period of catch levels below the TAC, which allowed an increase in biomass. This amounts to some evidence that the tools used to control harvest are appropriate and effective, meeting SG60.

There are various weaknesses preventing higher scores under this performance indicator. The TAC is shared among many countries and control is not precise. The practice of allowing the carry-forward of uncaught allocations effectively decreases the control on fishing mortality. Catches in practice have been well below the TAC, so the TAC has not been called upon to limit harvest yet. Therefore, SG80 is not met.

All SG60 were met, but no SG80 or SG100.

PI 1.2.2 : 60

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P.1.2.3 Information / monitoring

1.2.3.a Range of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

Although data have been generally poor and ICCAT has had considerable problems in maintaining accurate data in its database, there have been significant improvements over time. There was adequate information on stock structure, productivity and the fleets to allow a full stock assessment to be completed. Furthermore, there is evidence that on-going research is planned to improve information and therefore the stock assessment indicating on-going development of data collection is adequate to detect and remove problems.

The Albacore Species Group has recommended studies for North and South stocks on ageing, fecundity and maturity and improvements in tagging research. Sources of errors in data collection are being investigated, leading to further directed research to reduce them. Ageing errors have been estimated and greater standardization on the approach to improve precision has been recommended. Further evidence of on-going improvement is the updating of albacore catch-at-size data and methods used to convert from size to age. There is a multiyear research programme in place which is currently focused on obtaining knowledge to reduce risks, particularly related to recovery if the stock is reduced to around the limit reference point, which depends upon reproductive output at low stock levels, which depends upon the stock-recruitment model. This information is important for the northern Atlantic stock MSE development process which is taking place 2023-2025.

Information is clearly sufficient for the harvest strategy and therefore meets the SG80. However, there is considerable environmental data not directly used in the current harvest strategy, and there is evidence that environmental variability has a notable impact on albacore biology and ecology. Also, various data on age and abundance are limited and understanding of the population dynamics is incomplete. These gaps are recognized and, although there have been improvements, the Working Group made several recommendations with respect to information which would improve the assessment. Perhaps most obviously, the procedures to be applied under exceptional circumstances that will complete the harvest strategy for northern albacore, require additional information provided by the current research programme. With the gaps in information, the fisheries do not meet SG100. With successful completion of the data collection programme and subsequent MSE evaluation for northern albacore by 2025, the information on the data and uncertainties may be comprehensive by then, to allow this fishery to meet SG100.

1.2.3.b Monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Stock abundance and UoA removals are monitored and **at least 1 indicator** is available and monitored with sufficient frequency to support the harvest strategy.	Stock abundance and UoA removals are **regularly monitored at a level of accuracy and coverage consistent with the harvest strategy**, and **1 or more indicators** are available and monitored with sufficient frequency to support the harvest strategy.	**All information** required by the harvest strategy is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent **uncertainties** in the information (data) and the robustness of assessment and management in dealing with this uncertainty.

Monitoring indices are adequate for the current harvest control rule. Indicators of stock abundance mainly consist of standardized catch-per-unit-effort indices. Given the large areas of ocean and dispersal of the species, dedicated surveys are not an option for this type of fishery. A single consistent index is not available for the entire time series, but the combined indices do appear to provide a consistent picture of the changes in abundance that have occurred. Recommendations have included improved size composition coverage and CPUE standardization.

This accuracy and coverage of the monitoring program is adequate for the limited current harvest control rule, and available indicators would also support better defined rules based on fishing mortality and biomass estimates. Therefore, the fisheries meet SG80. The monitoring does not cover all information, and not all information from all fleets is recorded with a high degree of certainty. Therefore, the fisheries do not meet SG100.

1.2.3.c Comprehensiveness of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	There is good information on all other fishery removals from the stock.	

ICCAT has put considerable effort in getting countries to record and report catches. Electronic data forms were updated in 2023 to facilitate improved data collection, and the accompanying data automation processes were also improved. ICCAT prepares an annual report to assist scientists to identify where there may be gaps in catch reporting by species and country. The current level of reporting faces challenges given the number of small and/or developing countries involved with variable capacities, and difficulties in monitoring small vessels and activities in oceanic waters well away from the coast. This illustrates the on-going problems ICCAT faces with the contracting parties. Nevertheless, catches are recorded increasingly well with decreasing IUU fishing activity, and data are sufficiently well recorded in the most part for the stock assessment and for assessing the level of control sought by ICCAT over landed catches. This meets SG80.

All SG60 and SG80 were met, and 0 out of 2 SG100 were met.

PI 1.2.3 : 80

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P.1.2.4 Assessment of stock status

1.2.4.a Appropriateness of assessment to stock under consideration		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment is appropriate for the stock and for the harvest strategy.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.

Various stock assessment models and software have been applied in the past. All methods and model structures are generic but are structured to take advantage of the available data. The 2016 assessment built on prior assessment experience, using forms of biomass dynamics (production) models. In 2020, the stock assessment was conducted including catch and effort data up until 2018 and considering similar methods as in the previous assessment.

The stock assessment has not been carried out frequently, but the update from 2016 to 2020 given the stock has recovered is consistent with the current harvest objectives.

Life history model parameters are specific to the stock and/or species and have been derived from fitting stock assessment models or other independent research. This information is used only to a very limited extent in production models (mainly in the priors for one of the parameters in one of the models).

The assessment attempts to account for some features of the species biology and the fishery, but the approach remains broadly generic, meeting the SG80, but not SG100. Improved information used in the stock assessments on the biology from, for example, tagging studies, could lead to meeting SG100.

1.2.4.b Assessment approach		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.	

The stock assessments have been used to estimate the MSY-related reference points, and these have been used to determine stock status. This meets SG80.

1.2.4.c Uncertainty in the assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The assessment **identifies major sources** of uncertainty.	The assessment **takes uncertainty into account**.	The assessment evaluates stock status relative to reference points in a **probabilistic** way.

All ICCAT stock assessments attempt a probabilistic approach which is subsequently used, where there is sufficient information, to give management advice in the form of risk (projection tables and Kobe plots). Therefore, there is an argument that all assessments, where this is achieved, meet

SG100. However, we have applied judgement whether the probabilities are really being estimated and whether probabilities are reported in a form suitable for decision making, such as in risk tables.

The Bayesian state-space production model used (JABBA) reports results in a probabilistic way. The ASPIC model used a different approach (bootstrap resampling), but essentially this captures the uncertainty and was interpreted in the same way. The models and various sensitivities have been combined to produce probabilities of achieving objectives based on various management decisions. This decision table approach used for management advice is explicitly probabilistic. Therefore, SG100 is met.

1.2.4.d Evaluation of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.

Alternative software has been applied to the available data, although this falls short of a rigorous exploration of alternative hypotheses and approaches to assessment. The assessment in 2016 is based on simple production models which do not attempt to use size or age information. Alternative methods have been looked at for age-structured models, but the methods reviewed so far may not have been exhaustive. The 2020 assessment analyses gave robust results in the tests for base cases and sensitivity, but the working group noted that there was a level of real uncertainty that was not reflected in the models. No MSE has been conducted and yet confidence intervals are very wide. There are recommendations to continue work on developing improved statistical models. Overall, the stock assessment has only partially met SG100.

1.2.4.e Peer review of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment of stock status is subject to peer review.	The assessment has been **internally and externally peer** reviewed.

The stock assessment is subject to review through a working group process. SCRS meet annually and review models, data and research on the main tuna species as well as other species within ICCAT jurisdiction, meeting SG80. Although the North Atlantic albacore MSE has been peer reviewed, there has been no evidence of external review of the recent assessments, so SG100 is not met.

All SG60 and SG80 were met, and 1 out of 4 SG100 were met.

PI 1.2.4 : 85

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Mediterranean Albacore

1.1 Outcome

P.1.1.1 Stock Status

1.1.1.a Stock status relative to recruitment impairment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
It is **likely** that the stock is above the point of recruitment impairment (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.

The most recent stock assessment was completed in 2024 using a Bayesian state-space production model (JABBA) and catch and catch-rate data up to 2022. Due to uncertainties with the data inputs that could not be resolved at the time, including treatment of a larval index, the working group presented two possible stock status scenarios that were quite different. In the first scenario, the stock was overfished, with median B_{2022} estimated to be 58%B_{MSY} (95% CI 31%- 110%). A second scenario estimated median B_{2022} to be 144%B_{MSY} (95% CI 59%-264%). The working group noted that the previous two assessments in 2017 and 2021 suffered similar issues with assessment inputs. Likely because of the contrasting stock status scenarios generated by the 2024 assessment analyses, ICCAT made clear reference only to the 2021 assessment result in its latest management measure, ICCAT Rec. 24-08. ICCAT Rec. 24-08 acknowledged that the latest scientific advice indicated high uncertainty concerning clarification of stock status, especially fishing mortality, and the need to adopt the precautionary approach concerning no further catch increases. In view of this, and noting that the first scenario of the 2024 assessment indicated a very similar stock status to the 2021 result, the rationale for scoring this issue, based on the 2021 assessment that was formally referenced in Rec. 24-08, is retained.

Although there is no clearly defined limit reference point, ICCAT SCRS (2021) comments state that they believe 20% B_{MSY} is "a level below which there is an increased risk of stock collapse", implying that they might be thinking of it as a PRI as interpreted by MSC requirements. The Fox stock assessment model used fixes B_{MSY}/B_0 = 37% (instead of 50% for the widely-used Schaefer model), which using default MSC guidance indicates a PRI of 54%B_{MSY}. This is very significantly higher than 20%B_{MSY} suggested by ICCAT SCRS (2021). However, it should be noted that this would apply to exploitable biomass rather than spawning stock biomass, and the relation between these two is not clear without selectivity and maturity information. Nevertheless, it is not clear that 20% B_{MSY} is sufficiently precautionary taking into account MSC requirements and the uncertainties reported in the data and model, so the default 54%B_{MSY} has been used as the PRI to evaluate this scoring issue.

The 2021 stock assessment estimated that the median ratio of B_{2019} was 57%B_{MSY} (95%CI 32%-100%). Assuming a default limit reference point of 54%B_{MSY} and allowing for the MSC guidance on "likely", there is approximately a 70% probability that the stock would be above 49%B_{MSY}. Although this is an approximation and close to the PRI, it fails to meet the SG60 in 2019 because this is not clear evidence that it is above 54%B_{MSY}. This is a significant change from the 2017 assessment and is more pessimistic. While the current fishing mortality is above F_{MSY}, the stock is still likely to increase and that increase will be maintained if catches do not rise significantly above the current level. Using the actual average catch level of 2019-2023 (2583t) as a measure of a likely scenario for continued catch performance, the 2021 assessment indicated at least 50% chance that the stock will be above B_{MSY} by 2030. Therefore, the status of the stock could already be above the PRI in 2021, but based on the current evidence that is available, it does not yet meet the SG60.

1.1.1.b Stock status in relation to achievement of maximum sustainable yield (MSY)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

Retaining the result of the 2021 assessment for reasons explained at 1.1.1a, the state of the stock relative to B_{MSY} was estimated for 2019. The quantitative estimates indicate that the stock is below B_{MSY} level with the upper bound of the 95% CI estimated to be at B_{MSY}. Fishing mortality is estimated above F_{MSY}, but catches have been below the median MSY level of 3654t (95%CI 2446-5090t) since 2017. In 2017, the catch was 3176t, but decreased slightly during 2018-2021, averaging about 2800t in that period. During 2022-2023, the total annual average catch decreased again to around 2290t. At these catch levels, the stock is expected to increase in size over the coming years. Nevertheless, this suggests that SG80 is not met because the stock is currently below B_{MSY}.

None of the 1 SG60 were met.

PI 1.1.1 : Fail

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P.1.1.2 Stock Rebuilding

1.1.2.a Rebuilding timeframes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 that does not exceed **1 generation time** for the stock.

Because the stock did not meet SG60 in scoring issue 1.1.1.a, the rebuilding performance would probably not be scored in a full assessment. However, as the stock is very close to being likely above its limit reference point (and could be argued above in 2024 given the projected recovery and catch levels observed in recent years), the rebuilding performance indicator is considered here. SCRS scientific advice recommended a catch limit of 2500t to meet the Convention management objective and ICCAT recommendations (Rec. 21-06, 22-05 and 24-08) established a TAC of 2500t for 2022-26. If it is assumed that catches are not allowed to increase above 2500t based on the projections, the stock should recover above B_{MSY} with greater than 60% probability by 2034 (the Commission objective being 60% by 2036). Using the actual average catch level of 2019-2023 (2583t) as a measure of a likely scenario for continued catch performance, the stock would recover to the MSY level (green quadrant of the Kobe plot) with at least 50% probability by 2030. These scenarios would be a recovery time within approximately twice the estimated generation time for this stock (ICCAT ALB-SAR 2021). This meets the SG60.

The stated objective in Rec. 24-08 (repealing and replacing 22-05) reaffirms the conditions of the rebuilding programmes which spans 15 years (2036). This may be a little over two times the albacore generation time. Although it is within the approximate likely range for the species (9.6-15.6 years), a recent study indicated a potentially smaller age at 50% maturity for Mediterranean albacore (Garibaldi et al., 2017), which suggests a shorter generation time for this stock of possibly 5-6 years (see MSC guidance GSA 2.2.4), requiring a rebuilding timeframe of 10-12 years maximum. Notwithstanding, the TAC has been set to achieve rebuilding with at least 50% probability by 2029. However, no shortest practicable timeframe has been specified or sought, and no decision has been made to reduce catches to their lowest level, so SG100 cannot be met.

1.1.2.b Rebuilding evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 <b>specified time	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**.

Monitoring is in place to determine whether the rebuilding strategy has been working, as demonstrated by the available abundance indices and catches which are reported annually. Although the data have significant problems (missing catches and limited coverage by abundance indices), the monitoring overall is robust enough to support analyses to determine whether the recovery plan is working. Because this allows monitoring of the increase in abundance expected in the projections, SG60 is met.

Catches have averaged 2290t in the first two years of the rebuilding programme, which is partial evidence that the rebuilding strategy is working. However, due to continuing data limitations that create uncertainty about total catch, as well as accuracy of catch reporting, the working group could not generate updated, reliable information on stock status and hence advice on the effectiveness of the stock rebuilding strategy. The estimated stock projection based on the current TAC was mentioned, but the detailed stock projections were not presented in full in the 2024 SCRS report (ICCAT SCRS 2024). The gravity of the data and stock status advice limitation are evidenced by the continued use of the 2021 assessment result for management guidance and no agreed date for the next assessment (ICCAT Rec. 24-08). For this reason, SG80 is not met.

All SG60 were met, but no SG80 or SG100.

PI 1.1.2 : 60

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1.2 Harvest Strategy (Management)

P.1.2.1 Harvest Strategy

1.2.1.a Harvest strategy design		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **expected** to achieve stock management objectives reflected in PI 1.1.1/PI 1.1.1A 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/PI 1.1.1A 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/PI 1.1.1A SG80.

ICCAT's objective is embedded in the preamble of its Convention finalised in 1966. The preamble states: "The Governments (…) considering their mutual interest in the populations of tuna and tuna-like fishes found in the Atlantic Ocean, and desiring to cooperate in maintaining the populations of these fishes at levels which will permit the maximum sustainable catch for food and other purposes". ICCAT's objective is therefore to maintain populations of tunas and tuna-like fishes at levels that will permit maximum sustainable yield (MSY).

Furthermore, Rec. 11-13 on the principles for decision making mandates that for stocks that are overfished and/or subject to overfishing (i.e., stocks not in the green quadrant of the Kobe plot), the Commission shall immediately adopt management measures designed to result in a high probability of ending overfishing and/or rebuild the stock in as short a period as possible, taking into account, *inter alia*, the biology of the stock and SCRS scientific information and advice. Accounting for stock biology facilitates the inclusion of scientific advice about the PRI addressed at P1 1.1.1a, and which is required under the v3.1 MSC Standard.

ICCAT Rec. 15-07 has the intent of facilitating adoption of Management Procedures (MPs) with associated harvest control rules for ICCAT-managed stocks, applying Management Strategy Evaluation (MSE); these MPs offer the potential for more effective management of uncertainties. This intent is further supported by ICCAT Res. 15-12 that advocates application of the precautionary approach, in accordance with the relevant international standards.

With the completion of the 2021 stock assessment, the stock is to be rebuilt within 15 years from 2022 with controls defined in Rec. 21-06, extended by Rec. 22-05, and again by Rec. 24-08. As well as catch limits, countries are required to limit vessels to an authorised list that can catch albacore in the Mediterranean based on vessels operating in 2017 or 2018, to prevent increases in fishing capacity. The establishment of a fishing vessel authorisation list has been extended to sports and recreational vessels as well. Sport and recreational catches have been identified as a significant risk, and there is a limit of three albacore per recreational/ sports vessel per day, and these vessels are prohibited from marketing their catch. A 2-month closed season, originally enforced to support a management measure directed at Mediterranean swordfish but proving valuable for limiting albacore harvest, was extended to a 3-month season for the current strategy (Recs. 21-06, 22-05 and 24-08), with some flexibility granted between two potential closed season periods, the choice of which has to be formally communicated.

A Mediterranean albacore tuna Total Allowable Catch (TAC) of 2500t has been in place since the establishment of the rebuilding programme (Recs 21-06, extended by Rec. 22-05), and has been retained for 2025-26 (Rec. 24-08). Based on the stock assessment, this should allow the stock to rebuild.

Data were sufficiently improved to support a stock assessment in 2021, which gave projections on the performance of the current strategy, so it can be expected to achieve management objectives and rebuild the stock, meeting SG60. A catch sharing arrangement is in place, with some tolerances allowed for bycatch fisheries, and for capacity limitations (Rec. 24-08). However, given the fishery data issues that impacted the 2024 assessment result, it is not possible to say that the current strategy has been responsive to the stock, and it has not been in place long enough to evaluate whether the different parts work together, so SG80 is not met yet.

1.2.1.b Harvest strategy evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **likely** to work based on prior experience or plausible argument.	The harvest strategy has been **tested** and is expected to meet the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80 or there is evidence that the harvest strategy is achieving its objectives reflected in PI 1.1.1/ PI 1.1.1A SG80.	The performance of the harvest strategy has been **evaluated** and evidence exists to show that it is achieving the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80, including being clearly able to maintain stocks at target levels.

The average catch for 2022-23 was 2290t, but as the 2023 data are preliminary, the average total annual catch for the latest 5 years of available data (2019-2023), 2583t, was considered a better estimate of continuing catch trends. This amount is slightly above the TAC, which has been in force since 2021 (Rec. 21-06, amended by Rec. 22-05, and again by Rec. 24-08). Using the actual average catch level of 2019-2023 (2583t), applied over the next 10 years will still likely lead to stock recovery to the MSY level based on projections. Besides the TAC of 2500t that continues at least through 2026, the strategy includes other controls that should limit harvest levels. Controls include a catch sharing arrangement (Rec. 22-05, 24-08), an authorised list of vessels, a 2-month closure that was extended to a 3-month closure in 2021 (Rec. 21-06, replacing Rec. 17-05), and catch limits for recreational and sports fishery vessels. This is evidence that the current harvest strategy is likely to work based on plausible argument, so the fishery meets SG60. However, the working group noted that it was not able to test the effectiveness of the measures comprising the strategy, and there is considerable uncertainty with catch and other data. Hence, it is still not clear yet that the basis for the harvest strategy is reliable. Without evidence for some actual stock recovery (e.g. upward trend in abundance indices and early signs of recovery from an updated, reliable stock assessment), SG80 cannot be met yet.

1.2.1.c Harvest strategy monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Monitoring is in place that is expected to determine whether the harvest strategy is working.		

Some monitoring is in place covering catch and abundance indices, and limited size composition data. Other data used for monitoring was considered incomplete. Limited tagging studies have been undertaken, and there is ongoing work to improve the tagging database. It appears that there is no evidence whether the harvest strategy could achieve its objectives. The current strategy relies on limits on fishing capacity and targeting which do not appear to be controlled directly.

The 2021 stock assessment, on which the strategy remains based, used the available information to evaluate the performance of the fishery successfully. The conclusion of this was that the stock was overfished and overfishing is probably occurring. This monitoring of the harvest strategy performance is adequate to meet SG60.

1.2.1.d Harvest strategy review		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The harvest strategy is periodically reviewed and improved as necessary.

The SCRS Working Group conducts a review of the statistics and science supporting each new assessment and also reviews the effect of current management regulations, as needed. However, there is no evidence of any formal review of the overall harvest strategy. Although the harvest strategy is reasonable, there is inadequate information available to indicate what improvements might be possible. The ICCAT performance reviews did specifically address future harvest strategies, but focused on past performance of ICCAT in meeting its objectives. Improvements to the harvest control rule and development of procedures through management strategy evaluations to test alternative strategies do indicate improvements in this regard, and it is possible that the current ICCAT processes could meet SG100 in future, but clearer evidence for real improvements is still required, particularly for yellowfin and bigeye. It is worth noting that development of management strategy evaluation is progressing for bigeye tuna, yellowfin tuna, and the eastern stock of skipjack tuna, and a final Management Procedure for western Atlantic skipjack is expected to be concluded in late 2025. At this stage, the fisheries do not meet SG100.

1.2.1.f Review of alternative measures		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There has been a review of **alternative measures** to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **review** every 5 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock and they are implemented as appropriate.	There is a **review** that happens every 2 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock, and they are implemented, as appropriate.

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. Under v3.1 of the MSC Standard, this must include measures regarding unwanted catch of the target species by ghost gear.

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.

A 2009 review and survey of ghost gear fishing of target species indicated a relatively low impact for longline and purse seine gear, although ghost fishing information on these gears was limited. It is reasonable, therefore, to assume that this statement remains applicable and that the main issue would arise from lost FADs associated with purse seine fishing. This review also considered preventative measures.

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). Quantification of discards generally depends upon the presence of at-

sea observers, and observer coverage has generally been increasing. Discarding of target tunas has been considered low risk to the fisheries compared to other concerns.

Incorporating estimates of discards in catch estimates and the stock assessment amounts to a review of discards generally, but the scoring guideposts require a review of "measures" to minimise discarding of the target stock rather than a review of discarding itself. Whether discards are significant enough to require a review to work out how to reduce them would need to be determined on a case-by-case basis. The nature and frequency of reviews for the effects of ghost fishing is much lower than for discards (see MSC Standard Version 3.1, SA2.4.5.1 and SA3.7.2.3). Nevertheless, while ghost fishing (e.g., lost FADs) may be significant risk to bycatch and ETP species, it is unlikely that they cause any significant mortality to the target tuna species as they either do no capture tuna (FADs) or are designed to require active fishing (purse seine nets, longline). Exceptions for some fisheries, like gillnets, might still apply, and national reviews might be required for these gears, particularly for ghost fishing.

For the purposes of scoring this issue here, estimation of discarding and evidence of response is used to indicate a review (i.e., considering levels of discard and by extension its reduction where possible).

While bycatch and discarding have been monitored, it is less clear what management actions, if any, have been undertaken to reduce discards of tuna in the ICCAT region. In response to the joint meeting of tRFMOs in 2019, a management measure was adopted with the intent of reducing discards primarily by the Atlantic tropical tuna purse seine fishery, but the review of this measure has been limited by data and reporting issues (ICCAT SCRS 2022).

There is no evidence of a formal review of measures to prevent discarding at the RFMO level, and to minimise all other UoA-related mortality of unwanted catch of the target stock. If such a review is required it would have to be done at the national level.

Discarding of target tunas by gears apart from purse seine, which does not target albacore, is thought to be low. In 2024, the working group examined and documented the data on both dead and live discards (north, south, and Mediterranean) (ICCAT ALB SAR 2024). However, the nature and extent of the problem are unclear, in terms of any required alternative measures. Ghost fishing impacts by longline fisheries are also considered low.

Therefore, this issue is not scored because while discarding itself is monitored and reviewed, available evidence indicates neither that discarding is significant nor have opportunities to reduce unwanted mortality been identified.

All SG60 were met, but no SG80 or SG100.

PI 1.2.1 : 60

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P.1.2.2 Harvest control rules and tools

1.2.2.a HCRs design and application		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
HCRs are **expected to reduce the exploitation rate as the PRI is approached** and are either **generally understood** and **in place**, or **available**.	**Well-defined** HCRs **are in place** that **ensure** the exploitation rate is reduced as the PRI is approached, and are expected to keep the stock **fluctuating around** a target level consistent with (or above) MSY, or for key LTL species at levels 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**.

The current *ad hoc* rebuilding plan is part of a generally understood harvest control rule to rebuild the stock it has been determined as overfished (Rec. 21-06, 22-05, 24-08). So far, catch levels for 2022-2023 are below the TAC of 2500t. Along with other measures to reduce the exploitation rate, the agreed TAC is expected to allow the stock biomass to continue to rebuild to the target level. This is clear evidence of intention to reduce harvest in the face of depletion, and with the 2021 stock assessment and precautionary action taken in 2024 to prevent catches increasing (Rec. 24-08), information is currently adequate to provide guidance on this. The harvest control rule is not well-defined, however as there is no pre-agreed trigger point when the exploitation rate would be reduced and current rebuilding is occurring from below the limit reference point. Consistent with scoring of other tuna stocks, the generally understood harvest control rules meets SG60, but because it is not well-defined, it does not meet SG80.

1.2.2.b The robustness of HCRs to uncertainty		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

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. Projections of fixed catches have now been conducted with the improved stock assessment in 2021. Despite uncertainties in the 2024 assessment that indicated two possible different stock status scenarios, the SCRS estimated a 60% chance of the stock being above MSY levels by 2036 if the TAC is enforced. However, long term control of harvest has not been decided and there is no well-defined point when the exploitation rate would be reduced. Without a better-defined harvest control rule consistent with MSC requirements, SG80 cannot be met.

1.2.2.c Evaluation of HCRs		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

There is evidence of improvement in control over the fishery, with the establishment of a list of vessels authorized to target albacore, which might be a precursor for implementing appropriate tools to control harvest. Using the actual average catch level of 2019-2023 (2583t) as the likely continuing catch trend, the 2021 stock assessment reported that a catch level to the order of 2600t, close to the average of 2583t for 2019-2023, would allow the stock to recover to the green quadrant of the Kobe plot with a probability of over 50% by 2032, in contrast to catches over 4000t which would likely be unsustainable.

In 2021 the Commission adopted Rec. 21-06, which was subsequently updated (Rec.22-05 and 24-08) which set out controls with the objective of achieving B_{MSY} with at least 60% probability within 15-years (2022-2036). Controls include a catch sharing arrangement (Rec. 22-05, 24-08), an authorised vessel list limiting fishing capacity, a catch limit of 2500t at least through 2026, catch limits of sports and recreational vessels (3 fish per vessel per day) and a 3-month closed season, the last measure with some built-in flexibility on the timing to facilitate operational practicalities within individual countries. To date, the working group has not been able to test the effectiveness of these regulations (ICCAT SCRS 2024). While these controls have been introduced and being maintained, there is no direct evidence that they will be effective. There is evidence that similar controls have been to some degree effective, which meets SG60. However, Mediterranean albacore is one of the least well monitored stocks and although monitoring has improved significantly over the last 30 years, there remain significant gaps in the available indicators, so much so that the 2024 assessment results were inconclusive. More evidence is required that the tools being applied cover a sufficient proportion of the fishing mortality and will bring about stock rebuilding as required . Because these tools to limit exploitation may not be entirely appropriate, SG80 is not met.

All SG60 were met, but no SG80 or SG100.

PI 1.2.2 : 60

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P.1.2.3 Information / monitoring

1.2.3.a Range of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

Genetic studies suggest this stock is separated from the North Atlantic stock, and therefore needs to be managed separately. Mediterranean albacore data were reviewed in 2010 and as a result, deficiencies and a lack of information were identified in statistics from major fleets. It was concluded that in order to assess the status of this stock, the CPCs should provide revised and complete data for this purpose. A stock assessment was completed in 2017 and again in 2021 suggesting data are now sufficient to complete a “data poor” assessment. This reports stock status and projections and gives adequate guidance for catch advice. Therefore, this is sufficient to meet the default ICCAT harvest strategy requirements and meets SG80. However, the nature and extent of relevant information is not comprehensive, and significant information gaps remain. Hence the fishery does not meet SG100.

1.2.3.b Monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Stock abundance and UoA removals are monitored and **at least 1 indicator** is available and monitored with sufficient frequency to support the harvest strategy.	Stock abundance and UoA removals are **regularly monitored at a level of accuracy and coverage consistent with the harvest strategy**, and **1 or more indicators** are available and monitored with sufficient frequency to support the harvest strategy.	**All information** required by the harvest strategy is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent **uncertainties** in the information (data) and the robustness of assessment and management in dealing with this uncertainty.

Fishery removals are probably incomplete, but are monitored. The 2021 stock assessment used eight abundance indices for stock abundance, a significant improvement on the 2017 assessment. Therefore, the data seem sufficient to support the current harvest strategy, particularly taking into

account on-going improvements with data reporting and the evaluation and improvement of historical data, meeting SG60.

Taking into account the significant uncertainties (misreporting and under-reporting catches), it is unclear that data are accurate enough to establish a reliable harvest control rule. The 2021 assessment model was used to carry out projections due to uncertainties, which suggests that the model can provide precautionary advice on catch limits and therefore could form the basis of a harvest control rule. However, based on the model projections, rebuilding is by no means certain, with a greater than 30% risk rebuilding will not meet the Commission's objectives. Added to this are significant gaps in coverage of data including abundance indices not covering all areas, limited recreational catches and a lack of corroborating data such as size and age compositions. This suggests that while monitoring is regular, the level of accuracy and coverage are not necessarily consistent with the current harvest strategy (currently the rebuilding plan Rec. 21-06, 22-05, 24-08). Therefore, further evidence is required to support SG80.

1.2.3.c Comprehensiveness of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	There is good information on all other fishery removals from the stock.	

In general, the Mediterranean catches are highly uncertain and include misreporting and under-reporting. For the recent stock assessments in 2021 and 2024, the catches were revised and approved by the working group, although they remain incomplete. Historical catches include substantial estimates to fill in gaps in the records. The trend of fishing effort of the various gears fishing for albacore in the Mediterranean Sea is still not possible to estimate, due to short time series and inadequate coverage of artisanal gears. Information on size composition of the catch is also very limited. Overall, missing information from some fleets suggests that catches are still not reliably reported and continued work is required for improvement before these data might be considered "good". These issues continued through 2024. Therefore, SG80 is not met.

All SG60 were met, and 1 out of 3 SG80 were met.

PI 1.2.3 : 65

References

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P.1.2.4 Assessment of stock status

1.2.4.a Appropriateness of assessment to stock under consideration		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment is appropriate for the stock and for the harvest strategy.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.

In 2021 and 2024, the stock assessments for Mediterranean albacore were conducted using catch and CPUE data up to 2019 and 2022 respectively, using a Bayesian state space surplus production model (JABBA) to determine stock status and provide the scientific advice. This model is appropriate for this stock given the information available, meeting SG80. However, the methods are generic, and do not account for specific life history features or different sources of uncertainty in the population dynamics which might be addressed through a catch-at-age model, for example, so SG100 is not met.

1.2.4.b Assessment approach		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.	

The stock assessments have been used to estimate the MSY-related reference points, and these have been used to determine stock status. This meets SG80.

1.2.4.c Uncertainty in the assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The assessment **identifies major sources** of uncertainty.	The assessment **takes uncertainty into account**.	The assessment evaluates stock status relative to reference points in a **probabilistic** way.

All ICCAT stock assessments attempt a probabilistic approach which is subsequently used, where there is sufficient information, to give management advice in the form of risk (projection tables and Kobe plots). Therefore, there is an argument that all assessments, where this is achieved, meet SG100. However, we have applied judgement whether the probabilities are really being estimated and whether probabilities are reported in a form suitable for decision making, such as in risk tables.

The main sources of uncertainty in the data have been identified and clearly reviewed and reported, and efforts have been made to address these to the extent possible. Concerning the 2024 assessment, the working group noted that uncertainty in total catch could not be adequately addressed in the production model used. This is a key source of uncertainty impacting the successful use of the production model. The most recent state space biomass dynamics assessment models uncertainty directly and therefore evaluated stock status probabilistically (separating observation and process probabilities). Note that both the 2021 and 2024 assessments highlighted that not all potential sources of uncertainty were considered in the assessment model. This suggests that evaluation of uncertainty may have been considered incomplete by at least some members of the meeting and could lead to lower scores here if these are identified as “major” later.

Because the assessment identifies major sources of uncertainty and takes these into account, SG60 and SG80 are met. Given that stock status would be available as a marginal probability density and this was reported as a median with confidence intervals in the SCRS report and in the form of projected risk tables, stock status is being evaluated relative to reference points in a probabilistic way, meeting SG100.

1.2.4.d Evaluation of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.

A wide range of assessment approaches have not been presented. Stock assessment models are limited by the lack of length or age data. Limitations in the quality of the available abundance indices also restrict the scenarios that could be tested in the 2021 and 2024 assessments. Alternative hypotheses will need to be developed and explored through additional assessment models, simulations and scenarios before SG100 could be met.

1.2.4.e Peer review of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment of stock status is subject to peer review.	The assessment has been **internally and externally peer** reviewed.

The stock assessment is subject to review through a working group process. SCRS meet annually and review models, data and research on the main tuna species as well as other species within ICCAT jurisdiction, meeting SG80. Although the North Atlantic albacore MSE has been peer reviewed, there has been no evidence of external review of the recent assessments, so SG100 is not met.

All SG60 and SG80 were met, and 1 out of 4 SG100 were met.

PI 1.2.4 : 85

References

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Eastern Atlantic Bluefin

1.1 Outcome

P.1.1.1 Stock Status

1.1.1.a Stock status relative to recruitment impairment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
It is **likely** that the stock is above the point of recruitment impairment (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.

The stock assessment in 2022, applied three stock assessment models: virtual population analysis (VPA) with two additional approaches, Stock Synthesis (SS) and the age-structured assessment programme (ASAP). The three models applied in 2022 showed similar trends in spawning stock biomass (SSB), with a progressive decline in SSB from the 1970s until 2006 when a Recovery Plan was adopted (Rec. 06-05). Since the late 2000s there has been a strong increase in SSB, although the magnitude and rate of increase differ among the three models, with VPA indicating the lowest biomass increase, while ASAP indicates the largest increase.

None of the models resolved important uncertainties in terms of recruitment and the stock-recruitment relationship, although all gave similar results in terms of status. The management is based on $F_{0.1}$ being a suitable proxy for F_{MSY}, which is consistent with the VPA model. Using $F_{0.1}$ as a proxy for F_{MSY} for eastern bluefin has been tested and shown to be appropriate (Rademeyer & Butterworth 2018).

In terms of current status, the 2022 stock assessment estimated that the stock was not being overfished: $F_{current}/F_{0.1}$ = 0.81 (95%CI 0.48-1.62) where $F_{current}$ refers to the geometric mean of the

estimates (a proxy for recent F levels) for 2017-2020 for VPA, and for 2018-2020 for ASAP and Stock Synthesis. Together with the short term VPA projections, this indicated that it was highly likely that overfishing was not occurring at the time, and the 2022 TAC (36000t) was established in accordance with SCRS advice. An MP was adopted in 2022 for achieving MSY-based objectives, and has been used since then to set the annual TAC levels: in 2024, SCRS noted that trends in stock and fishery dynamics show expected trends and so retained the stock status advice generated in 2022.

All three assessments indicate that the stock has been increasing, but there is considerable uncertainty in the rate and magnitude of the increase in SSB, especially in recent years. The fishing mortality of the age group 2-5 and age 10+ fish showed an increasing trend since the 1970s, but then declined significantly after establishment of the 2006 Recovery Plan. Although recent fishing mortality has been increasing, when averaged over all three models, it remains below the fishing mortality target.

Based on the 2017 assessment, SCRS noted that the stock was already above $B_{0.1}$ for low and medium recruitment levels, but was below $B_{0.1}$ for the high recruitment scenario (ICCAT SCRS 2018). It is possible that $B_{0.1}$ might be a good proxy for B_{MSY}, but $B_{0.1}$ has not been directly estimated. To do this requires fishing at $F_{0.1}$ for a considerable length of time while being able to reliably estimate relative biomass, which has not been achieved yet. Therefore, it is not possible to define a precise biomass limit reference point based on B_{MSY}. A significant problem to estimating stock status in terms of biomass is the historical under-reporting of catches.

According to GSA 2.2.3(MSC Fisheries Standard v3.1), when there is explicit use of only a target reference point ($F_{0.1}$) there should be some implicit consideration of a point of recruitment impairment (PRI). The base-case VPA and ASAP results show a peak in recruitment ~1990-2000, corresponding to the low in the spawning biomass time series with an increase in spawning biomass since 2010 (ICCAT SCRS 2022, 2024). Stock assessment projections from the base-case VPA model estimate that for recent recruitment scenarios, fishing at $F_{0.1}$ will likely result in a small to no increase in biomass. This would suggest that SSB may be currently close to $B_{0.1}$.

In general, based on the estimated recruitment time series from the stock assessment, there is no evidence of a reduced recruitment associated with lower spawning stock biomass. Therefore, the lowest biomass point could be used as a proxy limit reference point ("B_{loss}"), so that the stock is currently above the PRI.

The SS3 model was used in 2020 to report stock status directly in relation to biomass reference points. Projections for 2018 estimated spawning biomass at 85% of B_{MSY}. Similarly, the ASAP model reported biomass above the $SSB_{F0.1}$ MSY proxy reference point, which included the 90% confidence interval (see Figure 31 of ICCAT E-BFT SA 2022). This is above a MSC default PRI of 50% or 75% B_{MSY}.

There is no clear quantitative analysis allowing the use of probabilistic definitions of 'likely', etc., and so scoring must be based on qualitative perceptions of probability and risk. SCRS decided to use the VPA model for short term projections applying the current TAC for consistency, but there is growing confidence in the other more advanced models.

Given that the 2022 stock assessment models indicate that the stock is above the PRI (assuming MSC defaults mentioned above), and the qualitative pattern in recruitment suggests the PRI is probably below current biomass levels, it is 'highly likely' that the stock is currently above the PRI and recruitment is not impaired. Therefore, SG60 and SG80 are met.

Bearing in mind the uncertainties, particularly the high uncertainty in biomass estimates which is primarily due to historical IUU fishing, it is difficult to evaluate the status more precisely. Therefore, although ostensibly the stock should be above the PRI, this depends upon a subjective evaluation of the assessment information. Therefore, it is more precautionary at this point not to assume higher precision for the estimate, and so SG100 is not met.

1.1.1.b Stock status in relation to achievement of maximum sustainable yield (MSY)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

SCRS considered that $F_{0.1}$ is a reasonable proxy for F_{MSY}, although it could be higher or lower dependent on the stock recruitment relationship, which was poorly determined. Neither the stock assessment working group nor the SCRS considered that biomass reference points were reliable indicators of stock status, because future recruitment was highly uncertain. So, stock status is evaluated here using $F_{0.1}$, which is the agreed proxy for F_{MSY} for the models (see MSC Fisheries Standard v3.1 GSA 2.2.3). There is a theoretical $B_{0.1}$, which is the long-term biomass that would result if $F_{0.1}$ is consistently applied, but $B_{0.1}$ cannot be reliably estimated.

The 2022 stock assessment estimated that $F_{current}/F_{0.1}$ = 0.81 (95%CI 0.48-1.62). The current perception of the stock status depends on recruitment estimates which are highly uncertain. The three different models, which were averaged to determined status, showed a relatively wide range of stock status estimates relative to the $F_{0.1}$ reference point, ranging from overfishing to not overfishing ($F_{current}$ /$F_{0.1}$): VPA = 1.16; SS = 0.72 and ASAP = 0.54. Overall, fishing mortality rates are much lower than those during the 1998-2007 period and the stock size has been increasing.

Under CR v3.1 GSA2.2.4 when using F as a proxy for scoring stock status MSC FCR3.1 states that:

- 'At least SG80 is justified where B is "highly likely" to be above the PRI and at or "fluctuating around B_{MSY}", if F is likely to have been at or below F_{MSY} for at least 2 generation times, or for at least 4 years, if greater.… while most species require about 2 generation times to recover from the PRI to B_{MSY} when fishing is at F_{MSY}, when F is reduced to 80%F_{MSY} or 60%F_{MSY}, the time for recovery may be halved.'

Generation time for eastern bluefin, calculated using Goodyear (1995) is 16.7 years, based on the parameters published and used in the stock assessment of eastern bluefin. This method provides the technical definition of MSC's generation time (CR3.1 Box GSA4). This would require fishing mortality to be maintained around F_{MSY} for ~34 years (i.e., until 2040) to meet the SG80. (We note that the alternative approximation for generation time in Box GSA4 is incorrect because it does not take account of fish growth in weight which is used to define SSB in the stock assessment).

Based on the guidance, if fishing mortality has been below 60%$F_{0.1}$ for half the recovery time, SG80 will be met as the stock will be expected to have recovered from a low level to around MSY with such low fishing mortality. Current evidence is insufficient to support this requirement. Although the different models indicate that the stock has likely been below the reference level since the recovery plan was adopted in 2006 much of the time, as noted above, estimates are highly uncertain and depend upon the levels of recruitment among other uncertainties. The current best estimates suggest that fishing mortality is just over 80% of the target, and perhaps more importantly there is significant risk that it is higher than this. Based on the recovery time being about 17 years, this implies that the MSC requirements based on scoring fishing mortality would be met for $F_{2\text{-}5}$ around 2025, and for F_{10+} by 2027 on the same basis, if the fishing mortality remains below 60%$F_{0.1}$ during this period. There is a strong risk that fishing mortality has not been kept low enough to use this as a justification to meet SG80. Therefore, based on determining status using fishing mortality only, the stock status does not meet SG80.

All SG60 were met, and 1 out of 2 SG80 were met.

PI 1.1.1 : 70

References

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P.1.1.2 Stock Rebuilding

1.1.2.a Rebuilding timeframes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 that does not exceed **1 generation time** for the stock.

ICCAT implemented a rebuilding plan for eastern bluefin in 2007 (Rec. 06-05), amended a number of times. Despite uncertainties in the 2017 stock assessment, the SCRS concluded that on balance of probabilities stock rebuilding was complete, and ICCAT shifted from a recovery plan to a multi-annual management plan (Rec. 18-02), with subsequent amendments through to Rec. 24-05. The objective of the multi-annual management plan was to maintain "the biomass around $B_{0.1}$, achieved by fishing at or less than $F_{0.1}$, which the SCRS considers to be reasonable proxy for F_{MSY}". This differs from the earlier recovery plan that was intended to rebuild the stock to B_{MSY} with greater than 50% probability (Rec. 06-05 and subsequent amendments) and at least 60% probability (Rec. 10-04, and subsequent amendments) in 15 years by 2022. The new multi-annual management plan has retained the monitoring and control measures included in the earlier recovery plan.

Based on the Goodyear(1995) generation time for the East Atlantic bluefin stock of 16.7 years, MSC requires rebuilding within 20 years to meet the SG60, which is a rebuilding target date of 2027 at the latest. Rebuilding is required of 16.7 years for the SG100, which implies the latest possible target date of 2024.

The main control on exploitation is the TAC, which has been increased stepwise to 36000t for 2020-2022 and 40570t for 2023-2025, with the TACs for 2023-2025 being set following the new MSE-tested management procedure adopted in 2022. The management plan also contains a series of technical measures; notably minimum size provisions and a series of seasons by gear, as well as a

large quantity of provisions for reporting and inspection which are intended to ensure that the TACs and other management measures are respected.

As explained above, ICCAT has been implementing a multi-annual management plan since 2019, a decision informed by the earlier 2017 assessment. The most recent stock assessment in 2022 seems to confirm biomass is reaching a stable state, although there remain significant uncertainties.

The view of SCRS is not consistent with the evaluation under PI 1.1.1.b above. However, the fishery is moving to a management procedure based on averaged abundance indices. This empirical harvest control rule has been tested through simulation (see PI 1.2.2). Given it is based on a target fishing mortality linked to abundance indices (proxy for biomass), together with fishing mortality maintained below the target for a generation if applied to 2025, application of the rule with stable relative biomass may be sufficient to argue rebuilding is complete. This can be evaluated when 2025 data become available and after the new management procedure has been implemented for a few years.

A rebuilding timeframe of 15 years was specified, which is shorter than one generation time. Current levels of TAC for 2023-2025 are expected to maintain the stock at the MSY level. The rebuilding plan, and now multi-annual management plan, has been implemented such that fishing mortality has been reduced to a level consistent with rebuilding the stock over this period. Because the rebuilding plan is set out to achieve rebuilding within 20 years, SG60 is met. The rebuilding plan was set to achieve rebuilding within one generation time and appears to have been implemented with as low fishing mortality as was practically possible, so SG100 is also met.

1.1.2.b Rebuilding evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 <b>specified time	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**.

Monitoring is in place to determine whether the rebuilding strategy has been working. Data are collected regularly for stock assessment which has been carried out at regular intervals, with the regularity being controlled by the MP adopted in 2022. In addition, indicators are compiled each year to check if there have been significant changes detected in the fishery. Other monitoring information includes the Bluefin Tuna Catch Documentation Scheme, the Atlantic-Wide Research Programme for Bluefin Tuna (GBYP), the abundance indices, age and growth studies and the tagging programs. This meets SG60.

Evidence from the stock assessment indicates that exploitation has been reduced in line with rebuilding requirements and the stock has been increasing in size in recent years. There is evidence from the estimates of recent exploitation rate, biomass estimates, simulation modelling (short-term projections of ASAP, SS3 and VPA models), and abundance indices that the stock either has rebuilt or should rebuild within the specified timeframe of 15 years (to 2022). SG80 is met.

The 2022 stock assessments indicate that the F has likely been below $F_{0.1}$ since 2007, with the most pessimistic (VPA) suggesting the most recent fishing mortality slightly above $F_{0.1}$, while the two other assessments indicate it is below. The assessments are sensitive to recent recruitment which is poorly estimated. All models show SSB has been increasing, albeit this increase has decelerated towards a

state which SCRS indicates that the stock has been rebuilt. This is interpreted here as strong evidence of rebuilding, meeting SG100.

Given the uncertainties, and applying GSA2.2.4 allowing status estimates to rely on fishing mortality, it is prudent to monitor the situation. The next stock 'health check' is likely in 2026, by which time there would be data for a generation for the indicative $F_{2\text{-}5}$. If the fishing mortality remains low and abundance indicators continue to suggest the stock has recovered, PI 1.1.1.b may be aligned with SCRS view on rebuilding and this PI 1.1.2 might be closed. This would also recognise the new management procedure being implemented from 2023 which should be robust to a wide range of uncertainties associated with the stock assessment.

All SG60, SG80 and SG100 were met.

PI 1.1.2 : 100

References

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1.2 Harvest Strategy (Management)

P.1.2.1 Harvest Strategy

1.2.1.a Harvest strategy design		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **expected** to achieve stock management objectives reflected in PI 1.1.1/PI 1.1.1A 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/PI 1.1.1A 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/PI 1.1.1A SG80.

ICCAT's objective is embedded in the preamble of its Convention finalised in 1966. The preamble states: "The Governments (…) considering their mutual interest in the populations of tuna and tuna-like fishes found in the Atlantic Ocean, and desiring to cooperate in maintaining the populations of these fishes at levels which will permit the maximum sustainable catch for food and other purposes". ICCAT's objective is therefore to maintain populations of tunas and tuna-like fishes at levels that will permit maximum sustainable yield (MSY).

Furthermore, Rec. 11-13 on the principles for decision making mandates that for stocks that are overfished and/or subject to overfishing (i.e., stocks not in the green quadrant of the Kobe plot), the Commission shall immediately adopt management measures designed to result in a high probability of ending overfishing and/or rebuild the stock in as short a period as possible, taking into account, *inter alia*, the biology of the stock and SCRS scientific information and advice. Accounting for stock biology facilitates the inclusion of scientific advice about the PRI addressed at P1 1.1.1a, and which is required under the v3.1 MSC Standard.

ICCAT Rec. 15-07 has the intent of facilitating adoption of Management Procedures (MPs) with associated harvest control rules for ICCAT-managed stocks, applying Management Strategy Evaluation (MSE); these MPs offer the potential for more effective management of uncertainties. This intent is further supported by ICCAT Res. 15-12 that advocates application of the precautionary approach, in accordance with the relevant international standards.

The harvest strategy of Atlantic bluefin tuna involves data collection and stock assessment as well as effective conservation and management, requiring international cooperation, as carried out in the ICCAT framework. Given the history of misreporting, much of the focus has been ensuring that monitoring is as accurate as possible, including catch documentation scheme to trace catches through markets and reduce the opportunity for illegal sales.

In 2023, Atlantic bluefin tuna management was embarking upon a transition to a management procedure approach, adopted by the Commission at its 21 November 2022 meeting. This approach links Eastern and Western area TACs under one management framework, providing joint management advice taking into account inseparable catches from each stock (ICCAT Rec. 23-07 replacing Rec. 22-09). The management plans and TACs themselves are applied through separate recommendations for each stock. The TAC set for the period 2023-2025 was set as 2726 and 40570 metric tons for Western and Eastern Atlantic / Mediterranean stocks, respectively. The procedure for setting TACs forms the harvest control rule (PI 1.2.2).

The strategy is set out in:

- Recommendations 24-05 for Eastern and 22-10 for Western bluefin set out the current conservation and management plan, including TAC and reporting requirements. The

recommendations establish, *inter alia*, catch limits (the TAC inclusive of dead discards for 2023-2025 will be 2726t for the Western stock and 40570t for the Eastern stock). Farming capacity controls in Rec. 22-08 were updated in Rec. 23-06.

- Resolution 18-03 set out a template for operational management objectives for Atlantic bluefin, but did not define the key operational parameters such as the acceptable risk levels and reference points that are required for implementation. It nevertheless formed the basis for the development of a management procedure.
- A new management procedure has been passed (Rec. 22-09, amended by 23-07). This is being used to set TACs for 2023 onwards for both the Eastern and Western stocks.

The new management procedure was developed using management strategy evaluations conducted through 2022. This allowed a procedure to be developed that accounted for the main uncertainties, such as unrecorded catches and misallocation. Reviews of the procedure's performance is to be completed by 2028, and every 6 years thereafter.

The bluefin tuna stocks are subject to stock assessment and monitoring, with catch data submitted to ICCAT for these purposes. Although the new management procedure links TACs to averaged abundance indices directly, it is still planned to conduct regular stock assessments to evaluate the performance of the harvest control rule.

As well as the joint management procedure, each of the Western and Eastern stocks has specific provisions suitable for issues which apply to the fisheries on each stock.

The provisions of the current management plan for the Eastern stock are complex, with a wide range of elements including a quota- sharing arrangement, capacity management, fishing seasons based on vessel size, and gear specific regulation, which reflects the wide range of gears and fleets catching bluefin, and the need to ensure effective control of fishing capacity, and to enable traceability of catches, particularly the transport of live fish and farming activities. The main control on exploitation is the TAC, which is now controlled through the management procedure. Additional controls include: technical measures, notably a minimum size and a series of seasons by gear, country-level quota management, observer programmes, management and monitoring of key aspects of farming operations, commensurate with quota allocations. Specific provisions are included for monitoring, reporting and inspection which are intended to ensure that the TACs and other management measures are respected (Rec. 22-08 updated in Rec. 23-06, replaced by Rec 24-05). The main complicating feature of the Eastern stock is the presence of farms which grow captured bluefin to larger sizes, but require additional monitoring to ensure all mortality is recorded as accurately as possible. Despite problems with unrecorded catches, the minimum landing size provisions appear to have been successful in reducing fishing mortality on juveniles and TAC have been successful as evidenced by the rebuilding.

The Atlantic bluefin harvest strategy has been responsive to the state of the stocks both in the original rebuilding plan, and subsequently in the new management procedure. The main elements (data collection, stock assessment and management measures) are working together to build the stock to a healthy level consistent with MSY approach. Therefore, SG60 and SG80 are met.

In addition, having gone through a period of development and testing using management strategy evaluations, together with the planned further review and refinement, the harvest strategy has been designed to achieve stock management objectives consistent with PI 1.1.1/ PI 1.1.1a, and therefore meets the SG100.

1.2.1.b Harvest strategy evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **likely** to work based on prior experience or plausible argument.	The harvest strategy has been **tested** and is expected to meet the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80 or there is evidence that the harvest strategy is achieving its objectives reflected in PI 1.1.1/ PI 1.1.1A SG80.	The performance of the harvest strategy has been **evaluated** and evidence exists to show that it is achieving the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80, including being clearly able to maintain stocks at target levels.

The stock assessment base case model provided evidence that the strategy is achieving its objectives, with F highly likely to be less than $F_{0.1}$ since 2010, and SSB likely to be increasing and now assumed logically to be above $B_{0.1}$. The harvest strategy has changed recently to a multi-annual plan reflecting the longer-term objectives, but the evidence from the projections still indicates that F less than $F_{0.1}$ will continue to be met at least in the short term. Therefore, SG60 and SG80 are met.

Uncertainties in the stock assessment (which notably do not allow a robust estimate of $B_{0.1}$ or $B/B_{0.1}$) do not provide evidence that the plan is 'clearly' (i.e., with high certainty) able to maintain the stock at target levels. For example, the stock assessment models used for advice suggest different TACs.

In relation to SG100, the uncertainties in the stock assessment do not provide evidence that the plan overall will clearly be able to maintain the stock at target levels. The new joint management procedure that applies to both the Eastern and western stocks is expected to maintain the stocks at productive levels (or continue rebuilding), and has been tested using management strategy evaluations, but the final MP, complete with the Exceptional Circumstances Protocol, has only just been put in place in 2023. It has therefore not been fully evaluated, so SG100 is not met. It will at least be necessary to show it can operate without incident for a few years.

1.2.1.c Harvest strategy monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Monitoring is in place that is expected to determine whether the harvest strategy is working.		

Monitoring is in place sufficient to evaluate the harvest strategy. Data collection includes the CPC Bluefin Catch Document (BCD) scheme (usually in its electronic version) and the Atlantic-Wide Research Programme for Bluefin Tuna for improving biological information. The stock assessment and other work uses the available data to evaluate the performance of the harvest strategy. For example, size composition of landings, as well as abundance, is closely monitored. Therefore, because appropriate monitoring is in place that is expected to determine if the harvest strategy is working, SG60 is met.

1.2.1.d Harvest strategy review		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The harvest strategy is periodically reviewed and improved as necessary.

Both stocks of Atlantic bluefin are now managed through the same harvest strategy (Rec. 23-07).

As well as historical review through monitoring, stock assessments and scientific advice, the new management procedure (MP) being implemented from 2023 for both western and Eastern bluefin stocks includes specific provision for review. A review of the performance of the MP by the Commission and the SCRS is to be completed by 2028 and every 6 years thereafter. The review should ensure that the MP is performing as expected and to determine whether it requires any adjustment based on real world experience. Both because there have been demonstrable ongoing review and improvements in the harvest strategy from 2006 (the rebuilding plan) and going forward with the management procedure, the SG100 is met.

1.2.1.f Review of alternative measures		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There has been a review of **alternative measures** to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **review** every 5 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock and they are implemented as appropriate.	There is a **review** that happens every 2 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock, and they are implemented, as appropriate.

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. Under v3.1 of the MSC Standard, this must include measures regarding unwanted catch of the target species by ghost gear.

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.

A 2009 review and survey of ghost gear fishing of target species indicated a relatively low impact for longline and purse seine gear, although ghost fishing information on these gears was limited. It is reasonable, therefore, to assume that this statement remains applicable and that the main issue would arise from lost FADs associated with purse seine fishing. This review also considered preventative measures.

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). Quantification of discards generally depends upon the presence of at-sea observers, and observer coverage has generally been increasing. Discarding of target tunas has been considered low risk to the fisheries compared to other concerns.

Incorporating estimates of discards in catch estimates and the stock assessment amounts to a review of discards generally, but the scoring guideposts require a review of “measures” to minimise discarding of the target stock rather than a review of discarding itself. Whether discards are significant enough to require a review to work out how to reduce them would need to be determined on a case-by-case basis. The nature and frequency of reviews for the effects of ghost fishing is much lower than for discards (see MSC Standard Version 3.1, SA2.4.5.1 and SA3.7.2.3).

Nevertheless, while ghost fishing (e.g., lost FADs) may be significant risk to bycatch and ETP species, it is unlikely that they cause any significant mortality to the target tuna species as they either do no capture tuna (FADs) or are designed to require active fishing (purse seine nets, longline). Exceptions for some fisheries, like gillnets, might still apply, and national reviews might be required for these gears, particularly for ghost fishing.

For the purposes of scoring this issue here, estimation of discarding and evidence of response is used to indicate a review (i.e., considering levels of discard and by extension its reduction where possible).

While bycatch and discarding have been monitored, it is less clear what management actions, if any, have been undertaken to reduce discards of tuna in the ICCAT region. In response to the joint meeting of tRFMOs in 2019, a management measure was adopted with the intent of reducing discards primarily by the Atlantic tropical tuna purse seine fishery, but the review of this measure has been limited by data and reporting issues (ICCAT SCRS 2022).

There is no evidence of a formal review of measures to prevent discarding at the RFMO level, and to minimise all other UoA-related mortality of unwanted catch of the target stock. If such a review is required it would have to be done at the national level.

In general, there is no or low unwanted bluefin catch (averaging less than 6 tons annually in 2019-2023) in the Eastern bluefin tuna fishery (see BFT- Table 1 in SCRS 2024 report), therefore, the scoring issue would not be applicable across all fisheries.

Since 2019, the operational annual TAC has been set to include accounting of dead discards. The current adopted management plan states that the TAC is inclusive of dead discards and is supported by provisions to ensure accounting of such discards against each country's quota allocation. In addition to the wanted catch, monitoring coverage is expected to capture landings of all discards, e.g. fish caught below the minimum size limit, fish that die during farm-related transfer and transport operations, and any dead fish retained during sport/recreational fishing operations. The observer programme is also expected to account for dead discards.

Although the overall tonnage of unwanted catch is arguably small, dependent on the fleet being assessed, this scoring issue may still need to be evaluated.

All SG60 and SG80 were met, and 2 out of 3 SG100 were met.

PI 1.2.1 : 95

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P.1.2.2 Harvest control rules and tools

1.2.2.a HCRs design and application		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
HCRs are **expected to reduce the exploitation rate as the PRI is approached** and are either **generally understood** and **in place**, or **available**.	**Well-defined** HCRs **are in place** that **ensure** the exploitation rate is reduced as the PRI is approached, and are expected to keep the stock **fluctuating around** a target level consistent with (or above) MSY, or for key LTL species at levels 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**.

Recommendation 23-07 (replacing Rec. 22-09) sets out the harvest control rule covering both Eastern and western Atlantic bluefin stocks, which has been in place from 2023 onwards. The recommendation describes clear management objectives, how the HCR performance will be evaluated, and the formulae for calculating TACs. The most current TAC implementation and other controls are described separately in Rec. 24-05 and 22-10 for the Eastern and western stocks respectively.

TACs are calculated based on five aggregated abundance indices for the western and Eastern Atlantic separately. They are averaged over the last three years data are available as well as over the available indices, although different weights are applied to each index. The weights are based on the estimated observation error and autocorrelation for each index. The TACs are adjusted relative to the (fixed) observed 2020 catch in each area and are designed to decrease at a higher rate if the averaged abundance indices decreases below the reference level (parabolic adjustment shape). The amounts of year-to-year change in the TAC is limited to avoid over-reaction to unusual index values.

Bluefin tuna is not a low trophic species, so MSY (as defined by MSC) is an appropriate target.

The HCR is well-defined and, as of 2023, in place. It reduces the exploitation rate as the stock decreases, so therefore as the PRI is approached. Based on the MSE, the HCR is expected to keep the stocks at a level consistent with the $F_{0.1}$ target (proxy for MSY), so the SG60 and SG80 are met.

Although the MSE was rigorous, the HCR has only recently been implemented, so its performance has not been evaluated in practice, particularly in rebuilding the western stock. This evaluation may be difficult due to the problems with the stock assessment. With the addition of an Exceptional Circumstances Protocol to the MP in 2023 (Rec 23-07), this tool is intended to be applied annually to identify any unusual trends in the fishery and stock dynamics that could render the MP unreliable. However, although HCRs are generally expected to keep the stocks fluctuating around a target fishing mortality level consistent with MSY, this may not be most of the time given unknown recruitment and other variables. Therefore, SG100 is not yet met.

1.2.2.b The robustness of HCRs to uncertainty		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

Both Eastern and western Atlantic stocks apply the same harvest control rule, albeit they apply to different areas and use separate indices; therefore, they scored in the same way.

The management procedure was tested on various alternative scenarios conditioned on historical data, including alternative growth, increasing catchability, unreported catch overages, levels of stock mixing, time varying stock mixing, catch scenarios, hyper-stable relative abundance indices, persistent changes in mixing, varying timing of future regime shifts, intermediate parameter values and zero Eastern mixing into the Western area. These represent a wide range of uncertainties. Additional aspects of uncertainty have been identified for future tests. At this time, it is not clear that the ecological role of the stock is being fully taken into account at this stage, the focus being on single species assessment and on other major uncertainties such as stock mixing. Information has been considered on habitat and larval distribution, but this is an area for further improvement. The MSE did show that the HCR is robust to main uncertainties, and therefore the SG80 is met.

Because the MSE tested-HCR took account of a wide range of uncertainties, and there is evidence from this that the HCRs are robust to the main uncertainties, it might be argued that SG100 is met. However, the HCR has not been fully implemented yet and will need to show it works reasonably well over a few years in practice before full real-world uncertainty could be said to have been addressed. In addition, there was very limited consideration of the stock's ecological role, so SG100 is not met.

1.2.2.c Evaluation of HCRs		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

The main tool to implement the HCR are the TACs. The stock assessment assumes that there are no unreported catches which is not the case. Overall monitoring, reporting and enforcement measures are strict relative to most fisheries, but this is counterbalanced by a strong incentive for unreported catch and information exists that some catches are unreported. The annual TAC of 36000t originally implemented for 2020-22 (Rec. 19-04, Rec. 20-07 and Rec. 21-08) has been increased to 40570t for 2023-25 based on the new management procedure (Rec. 24-05). Although reported catches are in line with recent TACs, unquantified illegal catches have continued to be taken. Nevertheless, SCRS has determined that size limits and the reduction of catch has certainly contributed to a rapid increase in the abundance of the stock. The presence of IUU catch has also been addressed in a management procedure.

The stock assessment has confirmed fishing mortality has been maintained below the target, having been reduced under the former rebuilding plan. A range of other tools are also in use (minimum landing size (MLS), seasonal closure and requirements on CPCs to manage capacity, which form part of the harvest strategy rather than the HCR, but support the HCR). Overall, biomass can be seen to have been recovering in all the stock assessment models. Because there is evidence that controls on exploitation have been successful, SG60 and SG80 are met.

SG100 requires that the evidence 'clearly shows' that tools are effectively achieving $F_{0.1}$ or below. While this is likely, the stock assessment remains too uncertain to make this statement definitively and unquantified illegal catches exist. Furthermore, other controls may not be as effective. There has been an underlying increase in fishing capacity which risks increasing pressure on TACs, and may still push them above precautionary levels. Therefore, SG100 is not met.

All SG60 and SG80 were met, and 0 out of 3 SG100 were met.

PI 1.2.2 : 80

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P.1.2.3 Information / monitoring

1.2.3.a Range of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

Information and monitoring for Eastern bluefin tuna have been significantly improved over the last decade both in terms of monitoring the fishery (the electronic bluefin tuna catch document (eBCD) system) and in terms of understanding the biology, ecology and dynamics of the stock (GBYP). In terms of monitoring the fishery, the eBCD has been kept under review (Rec. 15-10, and subsequent related recommendations through to Rec. 24-16). In view of the development of bluefin tuna aquaculture operations that are based on either the importation of wild bluefin tuna eggs or through full aquaculture cycles using broodstock, information on these activities is also expected to be captured by the eBCD system (Rec. 24-07), in an effort to maintain the controls in place to combat IUU fishing on the wild bluefin tuna stock.

Stock structure: Otolith microchemistry, genetics and tagging have been used to evaluate stock structure and specifically mixing between Eastern and western Atlantic stocks, which occurs in the mid-Atlantic (in terms of stock assessment, this is more of an issue for the western Atlantic stock which is much smaller). The stock assessment has been run based on fish origin as well as fish capture location. There could also be implications for an MSC assessment under the rules for inseparable or practicably inseparable (IPI) stocks rules (see MSC Fisheries Certification Process v3.1 Annex PA), dependent on where the bluefin are caught. However, the new harvest strategy and its associated HCR (Rec. 23-07 replacing Rec. 22-09) addresses this stock mixing issue, tested through management strategy evaluations.

Stock productivity: Age and growth has been extensively studied, but remains a significant source of uncertainty in the assessment, particularly in this case because of the assumptions underlying a VPA, and because age cohorts are hard to distinguish above a certain size. Size composition in the grow-out cages is monitored directly via stereoscopic cameras during cage transfer operations. Various options for estimating and modelling natural mortality were considered by the stock assessment during the data preparation phase.

Fleet composition: Fleet composition is known. All vessels targeting Eastern bluefin must be registered with ICCAT and have quota allocation.

Stock abundance: Various indices are used as proxies for stock abundance, including passive fishery indices (trap indices), fishing CPUE indices and fishery-independent indices (larval and aerial surveys).

Removals: The catch documentation scheme (eBCD) aims to track all removals with high confidence and accuracy. Growth of farmed fish (weight in vs weight out) remains problematic, although stereoscopic cameras are now used for monitoring of all transfers. While problems remain, this represents a significant improvement compared to historical estimates of catch levels.

Biology: As well as age/growth, natural mortality and genetics, other aspects of bluefin basic biology have been studied under the GBYP programme, using conventional and electronic tags to evaluate migratory routes, seasonal movements, dive behaviour and the location of feeding and spawning areas.

Environmental information: Seasonal movements, spawning and recruitment are thought to be linked to environmental cues and drivers. There has been research in this area although, as for most species of fish, it is still not well understood.

Other: A long catch history has been developed back as far as the early 16th century. This has allowed exploration of multi-decadal trends and cycles and their possible connection with large-scale oceanographic processes such as the North Atlantic Oscillation (NAO) to be explored.

Therefore, a comprehensive range of information is available, sufficient for the harvest strategy and includes some information not directly related to the harvest strategy, so SG60, SG80 and SG100 are met.

1.2.3.b Monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Stock abundance and UoA removals are monitored and **at least 1 indicator** is available and monitored with sufficient frequency to support the harvest strategy.	Stock abundance and UoA removals are **regularly monitored at a level of accuracy and coverage consistent with the harvest strategy**, and **1 or more indicators** are available and monitored with sufficient frequency to support the harvest strategy.	**All information** required by the harvest strategy is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent **uncertainties** in the information (data) and the robustness of assessment and management in dealing with this uncertainty.

Stock abundance and removals (total and by gear/country) are regularly monitored as specified in the provisions of Rec. 22-08 (updated by Rec. 23-06, and both replaced by Rec. 24-05). Because of the eBCD system that has been fully implemented since 2016 (Rec. 15-10, and subsequent related recommendations through to Rec. 24-16), coverage and accuracy are thought to be high, although estimates of some removals such as recreational catch may be less accurate. Indicators are reviewed annually by SCRS, and there are periodic stock assessments (2014, 2017, 2020, 2022). There are 10 abundance indices developed from fishery dependent data (standardised CPUE) which cover the range of the fisheries, as well as three fishery independent larval and aerial surveys. Because the removals and abundance indices are sufficient to support the stock assessment used in the HCR, SG60 and SG80 are met.

There have been considerable improvements in data quality and quantity over the past few years; nevertheless, important gaps remain in the temporal and spatial coverage for detailed size and catch-effort statistics for several fisheries, especially in the Mediterranean before the implementation of stereo video cameras in 2014. The catch at size (CAS) and catch-at-age (CAA) of the NEI catch (1998-2007) were revised for the 2017 and subsequent stock assessments, although concerns remain about the true value of catches for the 1998-2007 period.

The current HCR (Rec. 23-07) relies on abundance indices primarily because other data are thought to be unreliable. Recruitment in particular is highly uncertain and will affect how well the HCR performs. Although recruitment is monitored (e.g., via aerial surveys of spawning aggregations and larval surveys in the western Mediterranean, and from fisheries which take smaller individuals), factors which might predict the level of recruitment are not well understood. This is a significant source of uncertainty in the stock assessment. There are also concerns about how fishing capacity is estimated and monitored. Because some information that would greatly improve the HCR is missing, SG100 is not met.

1.2.3.c Comprehensiveness of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	There is good information on all other fishery removals from the stock.	

The ICCAT requirements for recording catch information (catch documentation scheme) applies to all fisheries targeting bluefin tuna or which have bluefin quota. There is therefore good information on these removals. However there remain two areas of potential concern which would not likely apply to a fishery undergoing certification: IUU removals and the recreational fishery.

Since 2015, WWF-Mediterranean have been compiling information on seizures of illegal bluefin tuna in the Mediterranean, which has been the key area for IUU on Eastern bluefin. Recorded IUU landings 2015-2018 have ranged over 35-117 tonnes per year in Spain, Italy, Tunisia and Algeria. WWF also estimated that 2500t of undeclared and hence illegal bluefin tuna was traded alongside legal landings in Malta (WWF 2018); this amount represented about 9% of the TAC for 2018. It is of course in the nature of IUU that the real quantity of IUU landings is higher than the quantity seized. Available information has demonstrated that catches of bluefin tuna from the East Atlantic and Mediterranean were seriously under-reported between the mid-1990s through 2007.

The recreational fishery is mainly from the Mediterranean, and mainly from EU countries. The stock assessment data preparation workshop (ICCAT BFT DP 2017) found that recreational catches are quantified in the catch data, at least in the more recent parts of the time series (since 1990), although they may not be that accurate. It is reported in France that recreational catches are estimated to be minor (~1% of the quota) but this may not be the case throughout the Mediterranean.

Overall, there is no clear evidence that unquantified removals are a major concern for the stock assessment because they are one of a range of uncertainties, and most likely not the most serious at this stage. However, it is important that all removals are well recorded to maintain confidence in the harvest strategy. There is still sufficient concern based on historical inaccuracies in catch records that information on all removals from the stock remain incomplete and SCRS describes illegal catches as “of unknown magnitude”. This prevents the stock assessment being able to provide reliable TAC advice. Some idea of the quantity of unreported catches is required, so SG80 is not met.

All SG60 were met, and 2 out of 3 SG80 were met.

PI 1.2.3 : 75

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P.1.2.4 Assessment of stock status

1.2.4.a Appropriateness of assessment to stock under consideration		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment is appropriate for the stock and for the harvest strategy.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.

The 2022 sock assessment has moved from a single VPA model to three equally weighted models (VPA, ASAP and Stock Synthesis) being considered useful for evaluating stock status. This marks ongoing improvement in the stock assessment, with both improvements in abundance indices and input data, as well as improved understanding of appropriate model structures to better account for attributes of the population and fisheries. The assessment models for bluefin tuna are nevertheless believed to be better at providing relative stock status (e.g., status relative to $F_{0.1}$) than in providing absolute TAC advice.

The stock assessments use the wide range of data available. A range of stock assessment models have been tried, and all use the catch, age composition and abundance index data. The model output supports the HCR, giving a range of results for different scenarios, but is not used directly in the HCR because the stock assessment cannot generate reliable estimates of stock biomass relative

to reference points, primarily due to unreliable catch data. The HCR setting the TAC uses averaged abundance indices also used in the stock assessments. This adjusts the TAC relative to levels that appear to achieve the objective of having fishing mortality close to the target level, which is determined from the stock assessment. Hence the information it generates is still sufficient to meet the requirements of the harvest control. Because the stock assessment was appropriate for the stock and HCR, SG80 is met.

The three assessment models provide a more balanced view of stock status, and underlines the uncertainties in the assessments. The assessments incorporate elements of the biology of the species (e.g., age/growth, M, size/age at maturity, etc.). The integrated catch-at-age statistical model (Stock Synthesis) is most able to take into account the major features relevant to the biology of the species and the nature of the fishery and is included as one of the assessment models. However, there is still not enough confidence to use it as the reference case. There remain issues in the biology of the species and fisheries which cause considerable problems for the assessment methods. While this is probably mainly due to problems with historical data, it still prevents the SG100 being met.

1.2.4.b Assessment approach		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.	

The reference point $F_{0.1}$ (and implicitly $B_{0.1}$) is used for the stock as a proxy for F_{MSY} rather than MSY reference points, because it is not possible to make a robust estimate of a stock-recruitment relationship. $F_{0.1}$ is appropriate because it is reasonably precautionary and can be estimated from growth and mortality parameters specific to the stock. Fishing at $F_{0.1}$ will result in biomass $B_{0.1}$ in the long term even if this is currently poorly estimated. Because the assessment uses reference points that are appropriate to this stock and can be estimated, SG60 and SG80 are met.

1.2.4.c Uncertainty in the assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The assessment **identifies major sources** of uncertainty.	The assessment **takes uncertainty into account**.	The assessment evaluates stock status relative to reference points in a **probabilistic** way.

All ICCAT stock assessments attempt a probabilistic approach which is subsequently used, where there is sufficient information, to give management advice in the form of risk (projection tables and Kobe plots). Therefore, there is an argument that all assessments, where this is achieved, meet SG100. However, we have applied judgement whether the probabilities are really being estimated and whether probabilities are reported in a form suitable for decision making, such as in risk tables.

The uncertainties in the assessment are highlighted by the stock assessment group as well as SCRS. The adoption of three models giving more or less optimistic results likely covered possible stock status, while emphasizing uncertainties. The results of alternative models and model settings were extensively considered and discussed during the stock assessment workshop. Clearly uncertainty has been taken into account, so SG60 and SG80 are met.

Although model structure uncertainty has been explored, probabilistic references are limited. Approximate confidence intervals are provided for some parameter estimates (e.g., $F/F_{0.1}$), but otherwise apart from the fit being based on likelihood accounting for observation error, VPA is not probabilistic. Stock Synthesis provides better assessment of probabilistic uncertainty, but this is lost in the comparison of the models which show a much wider range of results.

The management objectives demand and advice are given in the form of probabilities. Up to 2020, a Kobe matrix was used to provide estimates of the probability that the fishing mortality rate (F) will be less than the F reference point ($F \leq F_{0.1}$, overfishing not occurring) for alternative constant catches, based on results on the stock assessments. Therefore, probabilities are estimated, albeit the main stock assessment approaches, particularly VPA, have limited ability in this regard. In 2022, approximate confidence intervals are provided for key indicators (e.g., $F/F_{0.1}$) by combining model outputs. Although models are not fitted using a strict probabilistic approach, the use of probabilities in model outputs and advice mean the SG100 is met.

1.2.4.d Evaluation of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.

Although alternative approaches have been extensively tried and reported, so far they have not proved robust enough to be accepted and limited progress has been made in upgrading the stock assessment models. The new management procedure is empirical, based on averaged abundance indices rather than stock assessment indicators. SG100 is not met.

1.2.4.e Peer review of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment of stock status is subject to peer review.	The assessment has been **internally and externally peer** reviewed.

It is the intent of ICCAT to provide external review as part of their initiative to provide best available science (see Resolution 11-17). The stock assessments are reviewed by a working group of 30-40 scientists of many different nationalities and representing many different countries as well as formal observers (fisherman groups, NGOs). Qualified scientists representing different interest groups are often included within a member state's scientific delegation, as are scientists hired as external reviewers by the member state. Additionally, the ICCAT-SCRS has a system of bringing on external scientists for key issues on the SCRS agenda. This indicates that reviewing is extensive, but reviews are mainly internal by scientists linked to interested parties in the process. In addition, external reviews were undertaken for the latest assessments for both western Atlantic bluefin tuna and Eastern Atlantic and Mediterranean bluefin tuna (Maunder, 2021; Ianelli, 2023). Therefore, because there has been internal and external review of the stock assessment, SG80 and SG100 are met.

All SG60 and SG80 were met, and 2 out of 4 SG100 were met.

PI 1.2.4 : 90

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Western Atlantic Bluefin

1.1 Outcome

P.1.1.1 Stock Status

1.1.1.a Stock status relative to recruitment impairment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
It is **likely** that the stock is above the point of recruitment impairment (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.

The most recent 2021 assessment applied two stock assessment models (VPA and Stock Synthesis-SS3), but only used SS3 for management advice for the western bluefin stock. Assessments remain highly uncertain. Only the fishing mortality estimates relative to $F_{0.1}$ (a proxy for F_{MSY}) are used in the advice as the biomass estimates and reference points are considered unreliable due to the lack of any reliable stock-recruitment relationship. In addition, F_{MSY} can be higher or lower than $F_{0.1}$ depending on the unknown stock recruitment relationship. The current stock status therefore remains uncertain.

Scientific advice was given based on fishing mortality reference points ($F_{0.1}$) with short term two-year projections using 2012-2017 mean recruitment with alternative spawning-at-age, equally weighted across model scenarios. Current F (average of 2018-2020) was 53%$F_{0.1}$ (80%CI 49%-58%), an indication that overfishing was not occurring. In 2021, SCRS concluded that under the updated model, the TAC of 2350t (Rec. 20-06) would not likely lead to overfishing relative to $F_{0.1}$ with 100% probability. In 2024, SCRS noted that the 2021-22 TACs (2350t and 2726t respectively) were unlikely to have resulted in overfishing.

The 2017 and 2021 stock assessments showed similar patterns: that the SSB declined from the early 1960s to 1985, levelled off through the 1990s and 2000s, and then began increasing over the last decade (SS3 result). The fishing mortality rates on age 10 and older fish have fluctuated around an average of 0.12-0.14 yr^{-1} since the 1980s with a marked decline after 2003. In the 2021 Stock Synthesis model, total biomass in 2020 was 18% of biomass in 1950 and 46% of biomass in 1974.

No limit reference point has been defined and the PRI is therefore also not defined, and MSC default guidance must be used. Estimated recruitment has fluctuated at its lowest level of the series since 2010, with an apparent higher recruitment estimated after 2016, while SSB has increased during the same period. This increase in recruitment is not consistent with the stock being below PRI. The SS3 model estimated that fishing mortality has been below $F_{0.1}$ since 2004 and has been around half $F_{0.1}$ for the last 10 years covered in the assessment (2010-2020). Overall, this evidence suggests that the stock is likely above candidate PRI, meeting SG60. However, based on the SS3 results above, it is at least plausible that the stock is still depleted since F_{MSY} is unknown and fishing mortality has only been less than the target for around one generation, so there is insufficient evidence to support the stock being highly likely above the PRI, and SG80 is therefore not met.

1.1.1.b Stock status in relation to achievement of maximum sustainable yield (MSY)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

Biomass reference points consistent with MSY are highly uncertain and were not used in providing advice on setting TAC, although estimates still need to be taken into account in considering risk. Based on the SS3 estimate of MSY (from 2017 stock assessment) which are not considered very reliable, biomass is currently well below the MSY level, which would fail to meet SG80.

If biomass MSY estimates are not accepted, under CR v3.1 SA 2.2.4 and GSA 2.2.4, fishing mortality can be used as a proxy for scoring stock status:

'*At least SG80 is justified where B is "highly likely" to be above the PRI and at or "fluctuating around BMSY", if F is likely to have been at or below FMSY for at least 2 generation times, or for at least 4 years, if greater.*'

Generation time for bluefin, calculated using Goodyear (1995) is 16.7 years, based on the parameters published and used in the stock assessment of eastern Atlantic bluefin. This method provides the technical definition of MSC's generation time (CR v3.1 Box GSA4). This would require fishing mortality to be maintained around F_{MSY} for ~34 years to meet the SG80.

Using $F_{0.1}$ as a proxy for F_{MSY}, the 2021 SS3 model indicates that fishing mortality has been close to this level since 1982. From the early 1980s to 2004 fishing mortality was consistently above the target level, but since 2004, it has been well below. In this scenario, the stock is likely to have rebuilt close to MSY despite recent low recruitment. Using these criteria, fishing mortality has been at or

below the MSY proxy between 2004 and 2020 (16 years ~ one generation). Based on the Kobe II matrix provided in 2021, giving the probability of overfishing relative to $F_{0.1}$, it was highly likely that overfishing would not occur with 100% probability for the next 2 years (estimated for 2022- 2023), based on the TAC of 2726t that had been set for 2022; also, the stock biomass was expected to increase.

In 2024, ICCAT was unable to declare the stock rebuilt due to continuing uncertainty about long-term recruitment potential. A new conservation and management plan was adopted (Rec. 22-10), supported by an MP (Rec. 23-07, Rec 22-09). This new plan is intended to support continued stock rebuilding efforts and based on the adopted MP, a TAC of 2726t was retained for the period 2023-2025.

Taking into account the uncertainties and the different evaluations, it is not possible to determine that the stock is at the MSY level, and therefore SG80 is not met.

All SG60 were met, but no SG80 or SG100.

PI 1.1.1 : 60

References

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P.1.1.2 Stock Rebuilding

1.1.2.a Rebuilding timeframes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 that does not exceed **1 generation time** for the stock.

This scoring issue is difficult to score because the risks preventing PI 1.1.1 being scored at SG80 are due to uncertainties in the stock assessment rather than the state of the stock necessarily being below the MSY level. As a result, defining the level at which PI 1.1.1 SG80 would be met, which is required to close this PI 1.1.2, includes in no small part improvements in the stock assessment and estimates of MSY.

ICCAT has implemented a rebuilding plan for western bluefin since 1998. The objective of the rebuilding plan was to rebuild the stock to B_{MSY} with 50% probability in 20 years by 2018. Assuming all Atlantic bluefin have similar life histories and based on the Goodyear (1995) generation time for the East Atlantic bluefin stock of 16.7 years, MSC requires rebuilding within 34 years to meet the SG60, which is a rebuilding target date of 2032 at the latest. The latest assessment in 2021 indicated that the spawning stock has been increasing in size since 2004. Taking the effective rebuilding start date as 2004, the stock should have returned to MSY within 34 years (2038) and therefore the timeframe meets the MSC expectation at SG60.

Rebuilding time is required of 16.7 years for the SG100, which implies the latest possible target date of 2015. As of 2015, the 2021 stock assessment was unable to determine that western bluefin had been rebuilt. Based on a more realistic start date of 2004, when there is evidence that rebuilding had started, rebuilding should have been completed by 2021, but this has not been confirmed. Therefore, SG100 is not met.

1.1.2.b Rebuilding evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 <b>specified time	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**.

Monitoring is in place to determine whether the rebuilding strategy has been working. Data are collected regularly for stock assessment which has been carried out every three years. In addition, indicators are compiled each year to check if there have been significant changes detected in the fishery, which is now mandatory under the new MP. Other monitoring information includes the

bluefin tuna Catch Documentation Scheme, the Atlantic-Wide Research Programme for Bluefin Tuna (GBYP), the abundance indices, age and growth studies and the tagging programs. This meets SG60.

Evidence from the stock assessment indicates that exploitation has been reduced in line with rebuilding requirements and the stock has been increasing in size in recent years. There is evidence from the estimates of recent exploitation rate, biomass estimates, simulation modelling (short-term projections of SS3 and VPA models), and abundance indices that the stock either has rebuilt or should rebuild within the MSC-expected timeframe of 34 years (to 2038). SG80 is met.

The SS3 stock assessment indicates that the median estimate of fishing mortality has been reduced to below $F_{0.1}$ (proxy for F_{MSY}) since 2004, so that it has been below this F_{MSY} proxy with >80 % probability ('highly likely') for more than 10 years. However, the relationship between $F_{0.1}$ and F_{MSY} is unclear, and it is possible that $F_{0.1}$ overestimates F_{MSY}. Note that the estimate of $F_{0.1}$ and F_{MSY} depends on estimated selectivity which changes between stock assessments. Because the evidence is not strongly supportive of low fishing mortality in line with that required to rebuild the stock to MSY, SG100 is not met.

All SG60 and SG80 were met, and 0 out of 2 SG100 were met.

PI 1.1.2 : 80

References

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1.2 Harvest Strategy (Management)

P.1.2.1 Harvest Strategy

1.2.1.a Harvest strategy design		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **expected** to achieve stock management objectives reflected in PI 1.1.1/PI 1.1.1A 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/PI 1.1.1A 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/PI 1.1.1A SG80.

ICCAT's objective is embedded in the preamble of its Convention finalised in 1966. The preamble states: "The Governments (…) considering their mutual interest in the populations of tuna and tuna-like fishes found in the Atlantic Ocean, and desiring to cooperate in maintaining the populations of these fishes at levels which will permit the maximum sustainable catch for food and other purposes". ICCAT's objective is therefore to maintain populations of tunas and tuna-like fishes at levels that will permit maximum sustainable yield (MSY).

Furthermore, Rec. 11-13 on the principles for decision making mandates that for stocks that are overfished and/or subject to overfishing (i.e., stocks not in the green quadrant of the Kobe plot), the Commission shall immediately adopt management measures designed to result in a high probability of ending overfishing and/or rebuild the stock in as short a period as possible, taking into account, *inter alia*, the biology of the stock and SCRS scientific information and advice. Accounting for stock biology facilitates the inclusion of scientific advice about the PRI addressed at P1 1.1.1a, and which is required under the v3.1 MSC Standard.

ICCAT Rec. 15-07 has the intent of facilitating adoption of Management Procedures (MPs) with associated harvest control rules for ICCAT-managed stocks, applying Management Strategy Evaluation (MSE); these MPs offer the potential for more effective management of uncertainties. This intent is further supported by ICCAT Res. 15-12 that advocates application of the precautionary approach, in accordance with the relevant international standards.

The harvest strategy of Atlantic bluefin tuna involves data collection and stock assessment as well as effective conservation and management, requiring international cooperation, as carried out in the ICCAT framework. Given the history of misreporting, much of the focus has been ensuring that monitoring is as accurate as possible, including catch documentation scheme to trace catches through markets and reduce the opportunity for illegal sales.

In 2023, Atlantic bluefin tuna management was embarking upon a transition to a management procedure approach, adopted by the Commission at its 21 November 2022 meeting. This approach links Eastern and Western area TACs under one management framework, providing joint management advice taking into account inseparable catches from each stock (ICCAT Rec. 23-07 replacing Rec. 22-09). The management plans and TACs themselves are applied through separate recommendations for each stock. The TAC set for the period 2023-2025 was set as 2726 and 40570 metric tons for Western and Eastern Atlantic / Mediterranean stocks, respectively. The procedure for setting TACs forms the harvest control rule (PI 1.2.2).

The strategy is set out in:

- Recommendations 24-05 for Eastern and 22-10 for Western bluefin set out the current conservation and management plan, including TAC and reporting requirements. The

recommendations establish, *inter alia*, catch limits (the TAC inclusive of dead discards for 2023-2025 will be 2726t for the Western stock and 40570t for the Eastern stock). Farming capacity controls in Rec. 22-08 were updated in Rec. 23-06.

- Resolution 18-03 set out a template for operational management objectives for Atlantic bluefin, but did not define the key operational parameters such as the acceptable risk levels and reference points that are required for implementation. It nevertheless formed the basis for the development of a management procedure.
- A new management procedure has been passed (Rec. 22-09, amended by 23-07). This is being used to set TACs for 2023 onwards for both the Eastern and Western stocks.

The new management procedure was developed using management strategy evaluations conducted through 2022. This allowed a procedure to be developed that accounted for the main uncertainties, such as unrecorded catches and misallocation. Reviews of the procedure's performance is to be completed by 2028, and every 6 years thereafter.

The bluefin tuna stocks are subject to stock assessment and monitoring, with catch data submitted to ICCAT for these purposes. Although the new management procedure links TACs to averaged abundance indices directly, it is still planned to conduct regular stock assessments to evaluate the performance of the harvest control rule.

As well as the joint management procedure, each of the Western and Eastern stocks has specific provisions suitable for issues which apply to the fisheries on each stock.

The controls on the western stock are more straightforward than for the Eastern stock, where farms are used to grow smaller bluefin to size, making monitoring more complicated. Western bluefin tuna is managed through effort and capacity restrictions, annual quota, gear restrictions, time/area closures (i.e., Gulf of Mexico spawning area), prohibition of transshipment and minimum size limit (Rec. 22-10). In addition, there are strict reporting requirements.

The Atlantic bluefin harvest strategy has been responsive to the state of the stocks both in the original rebuilding plan, and subsequently in the new management procedure. The main elements (data collection, stock assessment and management measures) are working together to build the stock to a healthy level consistent with MSY approach. Therefore, SG60 and SG80 are met.

In addition, having gone through a period of development and testing using management strategy evaluations, together with the planned further review and refinement, the harvest strategy has been designed to achieve stock management objectives consistent with PI 1.1.1/ PI 1.1.1a, and therefore meets the SG100.

1.2.1.b Harvest strategy evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **likely** to work based on prior experience or plausible argument.	The harvest strategy has been **tested** and is expected to meet the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80 or there is evidence that the harvest strategy is achieving its objectives reflected in PI 1.1.1/ PI 1.1.1A SG80.	The performance of the harvest strategy has been **evaluated** and evidence exists to show that it is achieving the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80, including being clearly able to maintain stocks at target levels.

Although the rebuilding plan was due to finish in 2018, the stock has not been determined yet as rebuilt. There is evidence that the spawning stock biomass has been increasing, but it remains unclear what an appropriate target would be. The strategy's short-term objective to maintain below $F_{0.1}$ has been achieved. In accordance with the adopted MP, the western bluefin tuna TAC for 2023-25 has been established as 2726t. This TAC level allows 60% probability of maintaining the stock in

the green quadrant of the Kobe plot (not overfished and no overfishing), and so strives to maintain $F<F_{0.1}$ (proxy for F_{MSY}). Recent estimates suggest that fishing mortality has been below the target since 2004, with $F_{(2018-2020)}$ estimated to be around 50% $F_{0.1}$ with a high likelihood. Because there is evidence that the harvest strategy has been rebuilding the stock, SG60 and SG80 are met.

In relation to SG100, the uncertainties in the stock assessment do not provide evidence that the plan overall will clearly be able to maintain the stock at target levels. The new joint management procedure that applies to both the Eastern and western stocks is expected to maintain the stocks at productive levels (or continue rebuilding), and has been tested using management strategy evaluations, but the final MP, complete with the Exceptional Circumstances Protocol, has only just been put in place in 2023. It has therefore not been fully evaluated, so SG100 is not met. It will at least be necessary to show it can operate without incident for a few years.

1.2.1.c Harvest strategy monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Monitoring is in place that is expected to determine whether the harvest strategy is working.		

Monitoring and data collection includes the CPC Bluefin Catch Document (BCD) scheme (usually in its electronic version) and the Atlantic-wide Research Programme for the Bluefin Tuna (GBYP; see Rec. 22-10) for improving biology information. The stock assessment is compiled from information from the catch data, abundance indices, size information, age and growth data, stock composition data, tagging studies.

This comprehensive list indicates that appropriate monitoring is in place that is expected to determine if the HS is working. SG60 is met.

1.2.1.d Harvest strategy review		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The harvest strategy is periodically reviewed and improved as necessary.

Both stocks of Atlantic bluefin are now managed through the same harvest strategy (Rec. 23-07).

As well as historical review through monitoring, stock assessments and scientific advice, the new management procedure (MP) being implemented from 2023 for both western and Eastern bluefin stocks includes specific provision for review. A review of the performance of the MP by the Commission and the SCRS is to be completed by 2028 and every 6 years thereafter. The review should ensure that the MP is performing as expected and to determine whether it requires any adjustment based on real world experience. Both because there have been demonstrable ongoing review and improvements in the harvest strategy from 2006 (the rebuilding plan) and going forward with the management procedure, the SG100 is met.

1.2.1.f Review of alternative measures		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There has been a review of **alternative measures** to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **review** every 5 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock and they are implemented as appropriate.	There is a **review** that happens every 2 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock, and they are implemented, as appropriate.

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. Under v3.1 of the MSC Standard, this must include measures regarding unwanted catch of the target species by ghost gear.

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.

A 2009 review and survey of ghost gear fishing of target species indicated a relatively low impact for longline and purse seine gear, although ghost fishing information on these gears was limited. It is reasonable, therefore, to assume that this statement remains applicable and that the main issue would arise from lost FADs associated with purse seine fishing. This review also considered preventative measures.

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). Quantification of discards generally depends upon the presence of at-sea observers, and observer coverage has generally been increasing. Discarding of target tunas has been considered low risk to the fisheries compared to other concerns.

Incorporating estimates of discards in catch estimates and the stock assessment amounts to a review of discards generally, but the scoring guideposts require a review of “measures” to minimise discarding of the target stock rather than a review of discarding itself. Whether discards are significant enough to require a review to work out how to reduce them would need to be determined on a case-by-case basis. The nature and frequency of reviews for the effects of ghost fishing is much lower than for discards (see MSC Standard Version 3.1, SA2.4.5.1 and SA3.7.2.3). Nevertheless, while ghost fishing (e.g., lost FADs) may be significant risk to bycatch and ETP species, it is unlikely that they cause any significant mortality to the target tuna species as they either do no capture tuna (FADs) or are designed to require active fishing (purse seine nets, longline). Exceptions for some fisheries, like gillnets, might still apply, and national reviews might be required for these gears, particularly for ghost fishing.

For the purposes of scoring this issue here, estimation of discarding and evidence of response is used to indicate a review (i.e., considering levels of discard and by extension its reduction where possible).

While bycatch and discarding have been monitored, it is less clear what management actions, if any, have been undertaken to reduce discards of tuna in the ICCAT region. In response to the joint meeting of tRFMOs in 2019, a management measure was adopted with the intent of reducing discards primarily by the Atlantic tropical tuna purse seine fishery, but the review of this measure has been limited by data and reporting issues (ICCAT SCRS 2022).

There is no evidence of a formal review of measures to prevent discarding at the RFMO level, and to minimise all other UoA-related mortality of unwanted catch of the target stock. If such a review is required it would have to be done at the national level.

In general, dead discards (unwanted catch) averaged 37t in 2021-2023, or about 1.5% of the total catch in the western bluefin tuna fishery (see BFT-Table 1, ICCAT SCRS 2024). This noted, the annual TAC and hence country quotas are inclusive of dead discards (Rec. 22-10). Harvesting countries are obliged to report all dead discards and are required to minimise dead discards, although no specific discard minimisation measures are listed. Landings by sport/recreational fishing are also included in the quota system under ICCAT's Atlantic bluefin tuna fisheries management scheme (which means, among other things, that all recreational landings of bluefin tuna are notified and counted against the quota). While this scoring issue would not be applicable for all fisheries, it may still need to be evaluated, dependent on the fleet being assessed.

All SG60 and SG80 were met, and 2 out of 3 SG100 were met.

PI 1.2.1 : 95

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P.1.2.2 Harvest control rules and tools

1.2.2.a HCRs design and application		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
HCRs are **expected to reduce the exploitation rate as the PRI is approached** and are either **generally understood** and **in place**, or **available**.	**Well-defined** HCRs **are in place** that **ensure** the exploitation rate is reduced as the PRI is approached, and are expected to keep the stock **fluctuating around** a target level consistent with (or above) MSY, or for key LTL species at levels 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**.

Recommendation 23-07 (replacing Rec. 22-09) sets out the harvest control rule covering both Eastern and western Atlantic bluefin stocks, which has been in place from 2023 onwards. The recommendation describes clear management objectives, how the HCR performance will be evaluated, and the formulae for calculating TACs. The most current TAC implementation and other controls are described separately in Rec. 24-05 and 22-10 for the Eastern and western stocks respectively.

TACs are calculated based on five aggregated abundance indices for the western and Eastern Atlantic separately. They are averaged over the last three years data are available as well as over the available indices, although different weights are applied to each index. The weights are based on the estimated observation error and autocorrelation for each index. The TACs are adjusted relative to the (fixed) observed 2020 catch in each area and are designed to decrease at a higher rate if the averaged abundance indices decreases below the reference level (parabolic adjustment shape). The amounts of year-to-year change in the TAC is limited to avoid over-reaction to unusual index values.

Bluefin tuna is not a low trophic species, so MSY (as defined by MSC) is an appropriate target.

The HCR is well-defined and, as of 2023, in place. It reduces the exploitation rate as the stock decreases, so therefore as the PRI is approached. Based on the MSE, the HCR is expected to keep the stocks at a level consistent with the $F_{0.1}$ target (proxy for MSY), so the SG60 and SG80 are met.

Although the MSE was rigorous, the HCR has only recently been implemented, so its performance has not been evaluated in practice, particularly in rebuilding the western stock. This evaluation may be difficult due to the problems with the stock assessment. With the addition of an Exceptional Circumstances Protocol to the MP in 2023 (Rec 23-07), this tool is intended to be applied annually to identify any unusual trends in the fishery and stock dynamics that could render the MP unreliable. However, although HCRs are generally expected to keep the stocks fluctuating around a target fishing mortality level consistent with MSY, this may not be most of the time given unknown recruitment and other variables. Therefore, SG100 is not yet met.

1.2.2.b The robustness of HCRs to uncertainty		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

Both Eastern and western Atlantic stocks apply the same harvest control rule, albeit they apply to different areas and use separate indices; therefore, they scored in the same way.

The management procedure was tested on various alternative scenarios conditioned on historical data, including alternative growth, increasing catchability, unreported catch overages, levels of stock mixing, time varying stock mixing, catch scenarios, hyper-stable relative abundance indices, persistent changes in mixing, varying timing of future regime shifts, intermediate parameter values and zero Eastern mixing into the Western area. These represent a wide range of uncertainties. Additional aspects of uncertainty have been identified for future tests. At this time, it is not clear that the ecological role of the stock is being fully taken into account at this stage, the focus being on single species assessment and on other major uncertainties such as stock mixing. Information has been considered on habitat and larval distribution, but this is an area for further improvement. The MSE did show that the HCR is robust to main uncertainties, and therefore the SG80 is met.

Because the MSE tested-HCR took account of a wide range of uncertainties, and there is evidence from this that the HCRs are robust to the main uncertainties, it might be argued that SG100 is met. However, the HCR has not been fully implemented yet and will need to show it works reasonably well over a few years in practice before full real-world uncertainty could be said to have been addressed. In addition, there was very limited consideration of the stock's ecological role, so SG100 is not met.

1.2.2.c Evaluation of HCRs		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

The main tool to implement the HCR is TACs, which as noted in 1.2.2a are currently at a lower level than implied by the HCR, due to assessment uncertainty and precaution. The catches were in most of the years lower than the TAC (see BFT-W-Figure 1, p 100 in ICCAT SCRS 2024). The stock assessment assumes that there are no unreported catches which may not in fact be the case, but overall monitoring, reporting and enforcement measures are strict relative to most fisheries. This is supported by the catch documentation scheme (eBCD). A range of other tools are also in use, including *inter alia*, minimum landing size, seasonal and area closure in Gulf of Mexico, reporting of all sources of fishing mortality including dead discards, prohibition of transshipment-at-sea, effort limitation and requirements on CPCs to manage capacity which support the main tool.

Despite uncertainties in the stock assessment, the SCRS believes that fishing mortality is likely to have been mostly below $F_{0.1}$ since 1982 (SS3 model) and will likely continue to be, based on the current TAC regime for the next few years. The TAC in the West has not been caught since 2013, although SCRS believes that this is due to market and operational conditions rather than low catch rates. Biomass estimated in the stock assessments can be seen to be recovering in both stock assessment models, implying that the TACs have been effective in limiting the exploitation rate. The western Atlantic bluefin fishery has not had the problems associated with the growing-out bluefin in cages in the Mediterranean. Overall because TACs have shown to be effective, SG60 and SG80 are met.

However, it is not clear yet that TACs will be able to achieve the precision required for the long-term maintenance of the stock. This may be a problem with the evidence rather than implementation of the TACs and unquantified illegal catches of unknown magnitude exist. In addition, stock mixing is not explicitly taken into account and the effects of mixing and management measures on the Eastern stock remains a considerable source of uncertainty for the outlook of the western stock. There has also been an underlying increase in fishing capacity which risks increasing pressure on TACs, and may push them above precautionary levels. Therefore, SG100 is not met.

All SG60 and SG80 were met, and 0 out of 3 SG100 were met.

PI 1.2.2 : 80

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P.1.2.3 Information / monitoring

1.2.3.a Range of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

In ICCAT Rec. 2017-06 (amended by Rec. 21-07 and replaced by 22-10) are clearly stated the scientific research and data and reporting requirements. In the western Atlantic bluefin tuna fishery, Canada, the United States, Japan, Mexico, and other CPCs that are harvesting this stock are required to collaborate in the improvement of indices of abundance (particularly juveniles) and development of new combined indices. CPCs harvesting western Atlantic bluefin are also required to contribute to research, including that being undertaken through ICCAT's GBYP and for informing ongoing MSE work and the planned MP review, the collection and analysis of biological samples, and provision of new information on spawning times and areas. All CPCs are required to monitor and report on all sources of fishing mortality, including dead discards, and ensure that their vessels are subjected to a data recording system (Rec. 03-13) that yield the best available data for stock assessment purposes. Observers are also deployed routinely (Rec. 16-14).

Data on stock structure is improving but remains uncertain and mixing between the Eastern and western stocks in the mid-Atlantic is significant. This affects the western more than Eastern Atlantic bluefin stock management because the western stock is much smaller and therefore catch allocation between stocks has more impact. There could also be implications for an MSC assessment under the rules for inseparable or practicably inseparable (IPI) stocks rules (see MSC Fisheries Certification Process v3.1 Annex PA), dependent on where the bluefin are caught. The mixing of Eastern and western stocks could be further clarified through otolith constituent and genetic analyses, the work of which is supported by the scientific research and data and reporting requirements of Rec 21-07 (replaced by Rec. 22-10). However, the new harvest strategy (Rec. 23-07 updating Rec. 22-09) addresses this stock mixing issue, and has been tested through management strategy evaluations. This effectively has resolved the problem at least for the time being, but will need to be reviewed in due course (see PI 1.2.2).

Age composition, age at maturity, and indices of abundance contribute to the stock assessment uncertainty. The result is the productivity of the stock is poorly understood and this is likely primarily because key information on recruitment is lacking. Many of the problems contributing to this are likely to be the historical data which cannot be fixed directly, although further research and data on spawning should eventually resolve these issues.

Therefore, while some relevant information related is available to support the harvest strategy, meeting SG60, this is not sufficient to provide good data for the stock assessment and reduce the great degree of uncertainty surrounding bluefin tuna's status in the western Atlantic. Therefore, SG80 is not met.

1.2.3.b Monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Stock abundance and UoA removals are monitored and **at least 1 indicator** is available and monitored with sufficient frequency to support the harvest strategy.	Stock abundance and UoA removals are **regularly monitored at a level of accuracy and coverage consistent with the harvest strategy**, and **1 or more indicators** are available and monitored with sufficient frequency to support the harvest strategy.	**All information** required by the harvest strategy is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent **uncertainties** in the information (data) and the robustness of assessment and management in dealing with this uncertainty.

There are several indices of relative abundance and removals (total and by gear/country) are monitored sufficient for the harvest strategy and harvest control rule, so SG60 is met. Because of the eBCD system, coverage and accuracy of removals are thought to be high, although estimates of some removals such as recreational catch may be less accurate. Indicators are reviewed annually by SCRS, and there are periodic stock assessments estimating the required indicators when they may also be improved. The 2021 stock assessment used 10 CPUE and 2 survey indices to monitor abundance to 2020. SG80 is met.

Although uncertainties for the harvest strategy and HCR relate more to model structure in the stock assessment, some information which would be extremely useful in supporting the harvest strategy and HCR is not easily available; notably a reliable basis for forecasting recruitment. Although recruitment is monitored to some extent (e.g., via larval surveys, and from fisheries which take relatively small individuals), factors which might predict the level of recruitment (be that spawner biomass or environmental factors) are not well understood, and this is a significant source of uncertainty in the stock assessment and hence in developing, applying and evaluating the harvest strategy and HCR. It is not possible to estimate biomass-based reference points, requiring the HCR to be expressed in terms of fishing mortality, which prevents having a well-defined PRI. Therefore, SG100 is not met.

1.2.3.c Comprehensiveness of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	There is good information on all other fishery removals from the stock.	

The ICCAT requirements for recording catch information (catch documentation scheme: eBCD) applies to all fisheries targeting bluefin tuna or which have bluefin quota (ICCAT BFT DP 2017, 2021, ICCAT management recommendations). The Western bluefin has not had the same problems monitoring caged fish compared to the Eastern Atlantic stock. There is therefore good information on these removals. Overall, USA and Canada MCS are quite strong (see Acoura 2017 and NOAA fisheries website). Unquantified illegal catches of unknown magnitude are known to exist, but catches are overall thought to be in line with the reported removals, and this is supported by trends in indicators. The recreational fishery is well monitored. Therefore, the information on removals is good enough for the harvest strategy and harvest control rule, so SG80 is met.

All SG60 were met, and 2 out of 3 SG80 were met.

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P.1.2.4 Assessment of stock status

1.2.4.a Appropriateness of assessment to stock under consideration		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment is appropriate for the stock and for the harvest strategy.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.

The 2021 stock assessment applied two stock assessment models on two platforms (VPA and Stock Synthesis) as previously, but only the Stock Synthesis assessment was deemed suitable for projections and specific management advice for the western stock. Model diagnostics were evaluated through a wide range of procedures to evaluate the uncertainty and best approach. The 2021 assessment incorporated on-going improvements to the input data and biological assumptions compared to previous assessments, primarily focussed on the CPUE abundance indices and selectivity. The stock assessment used 10 CPUE and 2 survey indices up to and including 2020.

The stock assessments made the best use of the available data and provided the required information ($F/F_{0.1}$) for the harvest strategy, giving a range of results for different scenarios in the scientific advice. The stock assessment cannot provide accurate estimates of biomass relative to reference points, but the advice it generates is nevertheless sufficient for the harvest strategy. Because the stock assessment was appropriate for this stock and the harvest strategy considering the available data, SG80 is met.

The assessment incorporates elements of the biology of the species (e.g., age/growth, natural mortality etc.). However, ICCAT noted that further work is being conducted as part of the GBYP to collect more data on mixing, movement and stock of origin (see also clauses 14 and 15 of Rec. 22-10). As these data are being incorporated into the Management Strategy Evaluation (MSE) they should help refine the understanding and impact of stock mixing among other things. Therefore, not all the major features of the stock have been incorporated into the stock assessment, so SG100 is not met.

1.2.4.b Assessment approach		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.	

The fishing mortality-based reference point as $F_{0.1}$ was used rather than MSY reference points for setting short term catch limits, because it was not possible to make a robust estimate of a stock-recruitment relationship. $F_{0.1}$ is an appropriate proxy for F_{MSY} because it is reasonably precautionary and can be estimated from growth and mortality parameters specific to the stock. Fishing at $F_{0.1}$ will result in biomass $B_{0.1}$ in the long term even if this reference point is currently uncertain.

F_{MSY} and B_{MSY} have both been estimated based on a stock-recruitment relationship in previous SS3 stock assessments, but they are not used because recruitment has not appeared to follow a consistent pattern. Nevertheless, because the stock assessment estimates and uses a reference point appropriate to the stock, SG60 and SG80 are met.

1.2.4.c Uncertainty in the assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The assessment **identifies major sources** of uncertainty.	The assessment **takes uncertainty into account**.	The assessment evaluates stock status relative to reference points in a **probabilistic** way.

All ICCAT stock assessments attempt a probabilistic approach which is subsequently used, where there is sufficient information, to give management advice in the form of risk (projection tables and Kobe plots). Therefore, there is an argument that all assessments, where this is achieved, meet SG100. However, we have applied judgement whether the probabilities are really being estimated and whether probabilities are reported in a form suitable for decision making, such as in risk tables.

As for previous stock assessments, the SCRS warned that conclusions from the latest assessment using data through 2020, do not capture the full degree of uncertainty in the assessments and projections. The various major contributing factors to these uncertainties include mixing between the stocks, recruitment, age composition, age at maturity, and indices of abundance. The 2021 stock assessment made further improvements to previous assessments and the focus of advice comes from the Stock Synthesis statistical catch-at-age model rather than VPA.

A wide number of alternative scenarios were run including and excluding different data sources and alternative assumptions, testing possible sources of error through sensitivity analyses. This identified the suspected main sources of error, meeting SG60, as well as tested the sensitivities of the results to these errors, so SG80 is also met.

The management objectives demand and advice are given in the form of probabilities. A Kobe matrix has been used to provides estimates of the probability that the fishing mortality rate (F) will be less than the F reference point ($F \leq F_{0.1}$, overfishing not occurring) for alternative constant catches, based on results from the main stock assessments combined, but the SCRS have only presented a 2-year projection due to the significant uncertainties. Therefore, probabilities are estimated, albeit the main stock assessment approaches have limited ability in this regard. Approximate confidence intervals are provided for key indicators (e.g., $F/F_{0.1}$) by combining model outputs. Although models are not fitted using a strict probabilistic approach, the use of probabilities in model outputs and advice (MP objectives include probability statements – Rec 22-09, replaced by Rec. 23-07) mean the SG100 is met.

1.2.4.d Evaluation of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.

Alternative approaches have been considered using different models, such as age structured production models, length-based model, alternative age structured model with random effects and alternative growth models. Although these alternative approaches have been extensively tried, none have so far proved any more robust. The new management procedure is empirical, based on averaged abundance indices rather than stock assessment indicators. SG100 is not met.

1.2.4.e Peer review of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment of stock status is subject to peer review.	The assessment has been **internally and externally peer** reviewed.

It is the intent of ICCAT to provide external review as part of their initiative to provide best available science (see Resolution 11-17). The stock assessments are reviewed by a working group of 30-40 scientists of many different nationalities and representing many different countries as well as formal observers (fisherman groups, NGOs). Qualified scientists representing different interest groups are often included within a member state's scientific delegation, as are scientists hired as external reviewers by the member state. Additionally, the ICCAT-SCRS has a system of bringing on external scientists for key issues on the SCRS agenda. This indicates that reviewing is extensive, but reviews are mainly internal by scientists linked to interested parties in the process. In addition, external reviews were undertaken for the latest assessments for both western Atlantic bluefin tuna and Eastern Atlantic and Mediterranean bluefin tuna (Maunder, 2021; Ianelli, 2023). Therefore, because there has been internal and external review of the stock assessment, SG80 and SG100 are met.

All SG60 and SG80 were met, and 2 out of 4 SG100 were met.

PI 1.2.4 : 90

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Atlantic Bigeye

1.1 Outcome

P.1.1.1 Stock Status

1.1.1.a Stock status relative to recruitment impairment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
It is **likely** that the stock is above the point of recruitment impairment (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.

The 2021 assessment indicated that the stock was approximately 94%B_{MSY} in 2019 (80%CI 71%-137%). B_{MSY} was not reported for the 2021 assessment used for management advice, but was analytically determined to be 30%B_0 in the 2018 assessment, and so the default value for the PRI was 20%B_0 (see GSA2.2.3). The age structured model (SS3) was the primary source of information used to evaluate this stock, and shows a substantially more optimistic stock status than estimated in 2018 due to updated longline abundance indices and incorporating new mortality-at-age vectors. Based on the reported confidence intervals, the approximate points (assuming a normal probability for the estimate) that the stock would be above are: "likely" (70% probability) is 85%B_{MSY}, "highly likely" (80% probability) is 79%B_{MSY} and "with a high degree of certainty" is 64%B_{MSY}. Because the PRI (66%B_{MSY}) is between 64% and 79%, SG80 is met but SG100 is not.

1.1.1.b Stock status in relation to achievement of maximum sustainable yield (MSY)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

The latest assessment was conducted in 2021, and considered catch, size and effort data collected since the 1950s. The assessment used several different modelling approaches that utilized the available data. The conclusion of that assessment was that B_{2019}=94%B_{MSY} (80%CI 71%-137%) and the F_{2019}=100%F_{MSY} (80%CI 63%-135%). The biomass has probably been below B_{MSY} since the mid-1990s.

The current assessment estimated MSY as 86833t (80%CI 72210t-106440t), and the set TAC was 62500t in 2020, 61500t in 2021 and 62000t in 2022-2024, yet 2016-2019 catches ranged from 79897t down to 73077t. Catches significantly decreased in 2020 and 2021 to 57971t and 47209t respectively. Subsequently, catches increased again close to and slightly over the established TAC: 62313t in 2022 and 61320t in 2023 (2023 estimate was preliminary at the time of this report). TAC was increased to 73011t in 2025. Catches maintained at a level of less than 60000t are likely to allow the stock to rise above B_{MSY}. Probability estimates suggested that there was greater than a 50% probability that B_{2019}<100%B_{MSY}, and although the stock is now close to the B_{MSY} and has probably been increasing in recent years, it has not reached the MSY level yet. Therefore, the stock is not fluctuating around a level consistent with MSY and SG80 and SG100 are not met. A new stock assessment will be required to confirm the stock status.

All SG60 were met, and 1 out of 2 SG80 were met.

PI 1.1.1 : 70

References

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P.1.1.2 Stock Rebuilding

1.1.2.a Rebuilding timeframes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 that does not exceed **1 generation time** for the stock.

Given the life history characteristics of bigeye and the history of fishing on this bigeye stock, the stock has the potential to recover relatively quickly (within a 5-10 year period) with appropriate management measures. Projections from the 2021 assessment have indicated that catches at the current TAC level (~60000t) would have around 90% and 98% chance of achieving the Convention objectives (B>B_{MSY}) by 2025 and 2034 (12 years) respectively. A constant catch of 62000t, which is the TAC established in Rec. 21-01 for 2022, in Rec. 22-01 for 2023 and in Rec 23-01 for 2024 will have a high probability (97%) of maintaining the stock in the green quadrant of the Kobe plot by 2034. TAC was increased to 73,011t in 2025, which reduces the probability (64 - 73%) of the stock being in the green quadrant of the Kobe plot by 2034.

The rebuilding time frame of 2034 is within the 20 years or 2 times the approximate generation time. Based on the parameter estimates for maturity, natural mortality and growth used in the 2021 stock assessment, generation time would be around 8 years (GSA2.2.4: Goodyear 1995). If we interpret rebuilding as being achieved when the stock reaches the MSY level with a high degree of certainty (95% probability), this is expected to be achieved in 2030, which is within one generation at the current TAC. However it is not clear that this is the shortest practicable timeframe and there is no evidence all available controls have been implemented. It is concluded that the rebuilding time frame should fulfil SG60, but not SG100.

1.1.2.b Rebuilding evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 <b>specified time	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**.

In 2021, projections indicated that catches at the current TAC level (62000 t) would have 97% chance of achieving Convention Objectives by 2034, a time frame of 12 years. Additional measures (*i.e.,* FAD moratorium) agreed by the Commission in Rec. 15-01 (superseded by Rec. 19-02, 21-01, 22-01, 23-01 and 24-01) indicate an attempt at achieving recovery. The progress of the recovery will be monitored through catch monitoring and a planned new assessment in 2025. Monitoring is clearly sufficient to indicate whether rebuilding is taking place, which meets SG60.

With recent catches, it appears that rebuilding will very likely (probability >= 90%) be successful by 2026, within the former specified timeframe. According to updated ICCAT statistics, 2016-2018 catches were about 19% over the TAC set then to 65000t and the 2019 catch was estimated to 16% higher. Catches in 2020 and 2021 fell substantially to 57971t and 47209t respectively and was below the TAC for those years (62,500t and 61,500t respectively). The TAC for 2022-2024 was 62,000t, while the total annual catches during 2022 and 2023 were 62313t and 61320t respectively. TAC was increased to 73,011t in 2025. At this new higher TAC, the projections suggest probabilities of >70% of avoiding the stock being overfished and overfishing occurring from 2025 onwards.

Simulations of future stock status suggest that the median stock size will be around the MSY level if the catches had remained limited to a TAC of 62000, but there is considerable uncertainty and the TAC was increased for 2025. The most recent stock assessment is much more optimistic than the previous one. The 2021 assessment uses a grid of scenarios to cover uncertainty. For the worst case, the scenarios show a clear increasing trend in stock status, whereas the best-case scenarios suggest the stock is already at the MSY level. On the whole, evidence from the range of projections suggests that the stock has or will recover under a wide range of possible scenarios.

On balance the stock assessment supports current catch limitations will likely lead to recovery of this stock. The 2025 TAC of 73,011t still gives >70% chance of the stock avoiding being overfished and overfishing occurring, and total annual catch during 2020-2023 were below or around the agreed TAC level, meeting SG80. The evidence is not strong, however, particularly considering the differences between the most recent and last stock assessment illustrating the sensitivity to some mortality assumptions, so SG100 is not met.

All SG60 and SG80 were met, and 0 out of 2 SG100 were met.

PI 1.1.2 : 80

References

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1.2 Harvest Strategy (Management)

P.1.2.1 Harvest Strategy

1.2.1.a Harvest strategy design		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **expected** to achieve stock management objectives reflected in PI 1.1.1/PI 1.1.1A 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/PI 1.1.1A 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/PI 1.1.1A SG80.

ICCAT's objective is embedded in the preamble of its Convention finalised in 1966. The preamble states: "The Governments (…) considering their mutual interest in the populations of tuna and tuna-like fishes found in the Atlantic Ocean, and desiring to cooperate in maintaining the populations of these fishes at levels which will permit the maximum sustainable catch for food and other purposes". ICCAT's objective is therefore to maintain populations of tunas and tuna-like fishes at levels that will permit maximum sustainable yield (MSY).

Furthermore, Rec. 11-13 on the principles for decision making mandates that for stocks that are overfished and/or subject to overfishing (i.e., stocks not in the green quadrant of the Kobe plot), the Commission shall immediately adopt management measures designed to result in a high probability of ending overfishing and/or rebuild the stock in as short a period as possible, taking into account, *inter alia*, the biology of the stock and SCRS scientific information and advice. Accounting for stock biology facilitates the inclusion of scientific advice about the PRI addressed at P1 1.1.1a, and which is required under the v3.1 MSC Standard.

ICCAT Rec. 15-07 has the intent of facilitating adoption of Management Procedures (MPs) with associated harvest control rules for ICCAT-managed stocks, applying Management Strategy Evaluation (MSE); these MPs offer the potential for more effective management of uncertainties. This intent is further supported by ICCAT Res. 15-12 that advocates application of the precautionary approach, in accordance with the relevant international standards.

ICCAT, being a regional organisation, provides a forum where the various countries exploiting tunas can work together to implement the strategy to meet this objective. The current strategy is to limit catches to sustainable levels based on a feedback process implemented by the Commission and primarily reduce bycatch of small bigeye and yellowfin tunas. Scientific advice is provided and a TAC with a seasonal closed area agreed through this process, which therefore also includes evaluation of, and adaptation to, changing circumstance.

The 2016 external review panel found that recent changes appear to have been made to the seasonal closure without reference to scientific advice, rendering this management action less effective. The TAC is also not implemented precisely and there has been an overshoot in recent years (see PI 1.2.2). The external review panel indicated that they thought more effective measures were needed to deal with the catch of small bigeye tuna. The Panel noted that, according to the SCRS, the area-time closure has not achieved its objective and therefore its impact on reducing juvenile catches of bigeye and yellowfin, is negligible. The panel recommended that this policy needs to be re-examined and this can, in part, be done through initiatives on limiting the number and use of FADs. Measures to improve FAD management were subsequently introduced (e.g. Rec. 19-02). The SCRS have carried out analyses to evaluate the benefit of the FAD time/area closure measure. This measure has been adjusted over the years, but the results of the management measure evaluations are not definitive. For the most recent closure measure, some preliminary evidence was presented, although it was clear that more analysis was required. In view of this and the fact that the closures have been subject to unplanned changes (e.g. Rec. 15-01, 16-01), the strategy cannot be considered to be designed. Current main controls are directed at catch limits on bigeye tuna as well as a TAC on yellowfin tuna, but include updated measures to strengthen overall FAD and fishing capacity limitations (Rec. 24-01).

SCRS is expected to refine the Management Strategy Evaluation (MSE) process and test CMPs during 2025-26. There is work on development of a tropical tuna multi-stock MSE, which will treat BEAT, YFAT, and SKAE stock status simultaneously. Successful completion of these initiatives should lead to a full harvest strategy with elements designed to work together for achievement of objectives.

Constant TAC projections under the current TAC (62000 t) predict increasing biomass over the projection period. For the 2021 stock assessment, there is a probability of 81% of $B>B_{MSY}$ by 2022. This is more optimistic than the previous stock assessment. It should be noted that the strategy is not to maintain constant catches in reality, but adjust them with future stock assessments, so further decreases in catches will be expected if the stock does not appear to be recovering. This marginally supports SG60 being met.

While the 2016 ICCAT performance review noted that overall ICCAT management performance had improved since the previous review in 2009, it also singled out bigeye tuna as a problem, with both fishing mortality and biomass above and below their targets respectively.

Otherwise, the harvest strategy may be expected to achieve objectives in the longer term if catches can be maintained at the agreed TAC, noting that the TAC was increased from 62000t (2022-2024) to

73011t for 2025 (ICCAT Rec. 24-01). This recommendation refers to a 15-year rebuilding programme from 2020 to 2034, working with a >50% probability of achieving B_{MSY}. However, it is not clear that the different elements (TAC, spatial closures, FAD controls etc.) are working together to achieve the desired objectives, not least because the individual elements have not yet been shown to be fully effective. For example, the increased harvests on small fishes by FADs and other fisheries has negatively affected the productivity of bigeye tuna fisheries and so far, effective measures to reduce fishing mortality of small bigeye tunas have not been found. Although catches in 2020-2021 were considerably below TAC levels perhaps impacted by COVID-19 restrictions (ICCAT SCRS 2024), catches increased again by 2022 to reach slightly above 62000t. Additionally, TAC was increased for 2025, and so the harvest strategy requires further observations confirming stock recovery as uncertainties in the stock assessment remain high. For these reasons, the assigned score for this issue is SG60 and not SG80.

1.2.1.b Harvest strategy evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **likely** to work based on prior experience or plausible argument.	The harvest strategy has been **tested** and is expected to meet the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80 or there is evidence that the harvest strategy is achieving its objectives reflected in PI 1.1.1/ PI 1.1.1A SG80.	The performance of the harvest strategy has been **evaluated** and evidence exists to show that it is achieving the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80, including being clearly able to maintain stocks at target levels.

The TAC applied in 2016 was 65000t, but catches in 2016 to 2019 were consistently above 65000t. The TAC was set at 62500 t in 2020, 61500t in 2021 and 62000t in 2022-24. Catches dropped in 2020 and 2021 to below 60000t, but rose close to or slightly above the TAC in 2022-2023. The 2021 stock assessment suggested that the bigeye stock is probably below B_{MSY} and fishing mortality is at F_{MSY}. Projections indicated that catches at the TAC level (62000t) have 81% probability that Convention Objectives have been achieved by 2022, marking a change in perception of stock status with the new stock assessment. TAC was increased to 73011t for 2025.

The approach to management appears somewhat ponderous and evidence that it will continue to work is limited. The system requires re-evaluation and resetting the TAC through Commission recommendations which must be accepted by the contracting parties on each occasion. There is no pre-agreement on how to react to stock changes (picked up by PI 1.2.2 below) and stock assessments required to evaluate management performance are not frequent given the stock is heavily exploited. Explanations have not been provided for final decisions, so it is difficult to predict how management decisions will respond to changes in status and other factors affecting the stock. It has yet to be shown that the management system can maintain stock at the target level ($B>B_{MSY}$, $F<F_{MSY}$), the recent change in stock status being the result of a change in the stock assessment information rather than management action. However, catches have been reduced from around 135000t in 1994 to 72000t in 2013, so some control is being implemented and catches had been approaching the required target despite some fluctuations 2014-2022. Current catches are low compared to historical catches which regularly exceeded 100000t during the 1990s. Given further assessment, monitoring and action to be taken as required, SG60 is met as the fishery is likely to work if managers follow their own strategy (rebuilding the stock and maintaining catches at F_{MSY}). Evidence is still lacking that the desired outcome will be actually achieved in practice, so SG80 is not met.

1.2.1.c Harvest strategy monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Monitoring is in place that is expected to determine whether the harvest strategy is working.		

Monitoring is adequate to determine whether the harvest strategy is working. The different parts of the strategy include increasing the mean size and holding catches at the agreed TAC to avoid overfishing and biomass declines that cause the stock size to fall below MSY. Data are collected to estimate these quantities, despite there being considerable uncertainty associated with the accuracy of a large component of the catch monitoring. Also, the stock assessments regularly report estimates of biomass and biomass trend, which indicates whether management is achieving its objectives or not. Therefore, the fishery clearly meets SG60.

1.2.1.d Harvest strategy review		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The harvest strategy is periodically reviewed and improved as necessary.

The SCRS Working Group conducts a review of the statistics and science supporting each new assessment and also reviews the effect of current management regulations, as needed. However, there is no evidence of any formal review of the overall harvest strategy. Although the harvest strategy is reasonable, there is inadequate information available to indicate what improvements might be possible. The ICCAT performance reviews did specifically address future harvest strategies, but focused on past performance of ICCAT in meeting its objectives. Improvements to the harvest control rule and development of procedures through management strategy evaluations to test alternative strategies do indicate improvements in this regard, and it is possible that the current ICCAT processes could meet SG100 in future, but clearer evidence for real improvements is still required, particularly for yellowfin and bigeye. It is worth noting that development of management strategy evaluation is progressing for bigeye tuna, yellowfin tuna, and the eastern stock of skipjack tuna, and a final Management Procedure for western Atlantic skipjack is expected to be concluded in late 2025. At this stage, the fisheries do not meet SG100.

1.2.1.f Review of alternative measures		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There has been a review of **alternative measures** to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **review** every 5 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock and they are implemented as appropriate.	There is a **review** that happens every 2 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock, and they are implemented, as appropriate.

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. Under v3.1 of the MSC Standard, this must include measures regarding unwanted catch of the target species by ghost gear.

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.

A 2009 review and survey of ghost gear fishing of target species indicated a relatively low impact for longline and purse seine gear, although ghost fishing information on these gears was limited. It is reasonable, therefore, to assume that this statement remains applicable and that the main issue would arise from lost FADs associated with purse seine fishing. This review also considered preventative measures.

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). Quantification of discards generally depends upon the presence of at-sea observers, and observer coverage has generally been increasing. Discarding of target tunas has been considered low risk to the fisheries compared to other concerns.

Incorporating estimates of discards in catch estimates and the stock assessment amounts to a review of discards generally, but the scoring guideposts require a review of “measures” to minimise discarding of the target stock rather than a review of discarding itself. Whether discards are significant enough to require a review to work out how to reduce them would need to be determined on a case-by-case basis. The nature and frequency of reviews for the effects of ghost fishing is much lower than for discards (see MSC Standard Version 3.1, SA2.4.5.1 and SA3.7.2.3). Nevertheless, while ghost fishing (e.g., lost FADs) may be significant risk to bycatch and ETP species, it is unlikely that they cause any significant mortality to the target tuna species as they either do no capture tuna (FADs) or are designed to require active fishing (purse seine nets, longline). Exceptions for some fisheries, like gillnets, might still apply, and national reviews might be required for these gears, particularly for ghost fishing.

For the purposes of scoring this issue here, estimation of discarding and evidence of response is used to indicate a review (i.e., considering levels of discard and by extension its reduction where possible).

In the case of tropical tuna fisheries using FADs, a joint meeting of tRFMOs in 2019 reviewed the science and advice for mitigating FAD impacts, including reducing the mortality of the juvenile tunas. This meeting considered research and technological findings that could, help, inter alia, to inform alternative management measures to reduce juvenile bigeye and yellowfin tuna mortality: FAD monitoring and tracking, to minimise the potential for lost or abandoned FADs to be fished by other vessels; the use of acoustic discrimination techniques for juvenile tuna species identification. The meeting also identified the need to investigate the effects of depth, behaviour, and selectivity of purse seine nets, which could inform alternative measures for reducing unwanted juvenile bigeye tuna mortality. Consideration of the impact of FADs on juvenile tunas and recommendations about specific mitigation measures to reduce those impacts are expected to be addressed in a follow-up meeting, which has not yet taken place. It should be noted that the capture of juvenile bigeye and yellowfin are not unwanted in the sense that they would be discarded, only their capture may constrain the skipjack fishery as well as cause growth overfishing and impact the spawning stock and other gears, such as longline. Therefore, this effectively is an attempt to change the joint fishery selectivity, not reduce unwanted catch.

While bycatch and discarding have been monitored, it is less clear what management actions, if any, have been undertaken to reduce discards of tuna in the ICCAT region. In response to the joint meeting of tRFMOs in 2019, a management measure was adopted with the intent of reducing discards primarily by the Atlantic tropical tuna purse seine fishery, but the review of this measure has been limited by data and reporting issues (ICCAT SCRS 2022).

There is no evidence of a formal review of measures to prevent discarding at the RFMO level, and to minimise all other UoA-related mortality of unwanted catch of the target stock. If such a review is required it would have to be done at the national level.

For stocks with significant purse seine fisheries, some discarding may occur. In response, ICCAT has Recommendation 17-01, which prohibits discarding unless properly justified and requires discards to be recorded. This measure, adopted in response to recommendations by ICCAT's Ad Hoc Working Group on FADs and a review by the SCRS, shows at the very least that discarding of tuna has been discussed and reviewed and that controls are being implemented. There have been reviews by an Ad Hoc Working Group on FADs during 2015-2017, and recommendations have been made mostly to improve data, research, and monitoring, but also to limit the number of FADs. The data improvement measures were adopted, as well as a FAD fishing limitation that is kept under review (e.g. ICCAT Rec. 15-01 and later recommendations). The Ad Hoc Working Group had also recommended a retention policy to reduce bycatch and discards.

As ICCAT Rec. 17-01 essentially prohibits discards except for certain conditions; the measure recognises marketing options for certain juvenile tunas. This may potentially reduce the amount of 'unwanted catch' by these fisheries if being assessed against the MSC Standard, Version 3.1 (see SA 3.1.1e).

The global reviews, together with reviews by ICCAT's Ad Hoc Working Group on FADs, and SCRS, allows these fisheries to at least meet SG60. In addition, given annual monitoring levels, prohibition of discarding, and consistently estimated low discard rates, SG80 should also be met. Without formal reviews, it is not clear this is sufficiently frequent to meet SG100.

All SG60 were met, and 1 out of 3 SG80 were met.

PI 1.2.1 : 65

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P.1.2.2 Harvest control rules and tools

1.2.2.a HCRs design and application		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
HCRs are **expected to reduce the exploitation rate as the PRI is approached** and are either **generally understood** and **in place**, or **available**.	**Well-defined** HCRs **are in place** that **ensure** the exploitation rate is reduced as the PRI is approached, and are expected to keep the stock **fluctuating around** a target level consistent with (or above) MSY, or for key LTL species at levels 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**.

There is a harvest control rule in place but it is not well-defined and does not include a specific plan of control if the stock size falls below the maximum sustainable yield level. The intention inferred from the scientific advice and management response is to maintain the stock at or above the MSY level by maintaining the catch rates at or below F_{MSY}. Therefore, the "generally understood" HCR is to set catches low enough that the stock rebuilds to B_{MSY}, and subsequently set future catches so that the stock remains at this level. Precisely how this is done is unclear and how TACs are set, taking into account various uncertainties, is not defined. The HCR has not been tested in projections as it is too vague. Fixed catches have been tested in projections, but this does not meet requirements of an MSC harvest control rule. MSE work and development of HCRs for the Atlantic tropical tuna stocks are in progress, but not yet completed. First steps towards a MSE for southern Atlantic albacore have been taken (Res. 24-09), although a decision on final management objectives for incorporation into an MP is not expected until 2029. Northern Atlantic albacore has a well-defined HCR in place showing ICCAT's intent and progress on this issue.

The approach to controlling the harvest is broadly the same for yellowfin and bigeye tuna. Both are based primarily on setting TAC to control the exploitation rate (Rec. 24-01), but there are also vessel capacity limits and improving fish aggregation device (FAD) management (including a time-area closure, limits to the number of buoyed FADs per vessel and improved information for FAD management planning).

Past actions show clear evidence of intention to reduce harvest in the face of depletion and the scientific advice has indicated that the current level of control was adequate for the recovery of the bigeye stock to above the MSY level. However, more recently the stock has been reduced below the MSY reference point with fishing mortality being above F_{MSY}. Management has responded in Rec. 15-01 and subsequent recommendations that gave more attention to adjustment of FAD limitations and area/time closures (e.g. 16-01, 19-02, 24-01). But it is not clear to the SCRS whether those measures will be effective; for example, the TAC has not yet been adjusted in response to changes in the stock status, although specific limits on the capacity of some fleets have been applied and there is some evidence that harvest rate has declined as a result. Adjustments in the TAC and management measures if the stock came under increased pressure are available. If implemented, these are expected to rebuild the stock. This meets SG60.

Without a well-defined harvest control rule, SG80 cannot be met. The current objective is to create an MSE framework in which to develop and then implement management procedures by 2026, although there have been significant delays in developing this framework. This scoring issue should meet SG80 at the time that HCR are adopted based on evidence from the MSE work.

1.2.2.b The robustness of HCRs to uncertainty		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

No well-defined harvest control has been selected, making it difficult to evaluate uncertainties. The current TAC has been set for the period starting in 2016 at 65000t, reduced to 62500t for 2020, 61500t for 2021 and 62000t for 2022-24, and forecasts suggest catches at this level would rebuild the stock at MSY levels. One source of uncertainty is implementation error, where TAC is exceeded in practice, although ICCAT reported the 2020 and 2021 catch as being below the TAC. Despite the recent catch levels being below 60000t, the 2017-2019 catches were around 76700t. Based on the most recent 2021 stock assessment, a constant catch of 75000t would result in a reduction of the probability of the stock being at or above B_{MSY} over the next 10 years, but this probability would still be above 50%. This catch is at the lower end of estimates of maximum sustainable yield (86833t; 80%CI 72210t-106440t). Given that the total annual catch during 2020-2023 was around 57,200t on average, expectations on achieving rebuilding targets for this stock are even more optimistic. TAC was increased to 73011t at least for 2025; this is less than the case of a constant catch of 75000t that gives a >50% of ensuring that the stock remains at or above B_{MSY}. Therefore, there is sufficient evidence to show that the HCR is likely to be robust to uncertainties, including implementation error, so SG80 is met. However, with MSE development being incomplete, wider uncertainties have not yet been considered in developing HCRs, so SG100 has not been met.

1.2.2.c Evaluation of HCRs		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

The current level of control, perhaps at least partly through controls placed on capacity, has resulted in reducing catch levels for bigeye tuna. Individual countries apply quota controls. Quota is decided upon at the Commission and clearly not all quotas are fully effective. As demonstrated by the implementation of a seasonal closed area, controls other than a TAC are available to control fishing mortality, although the seasonal closure has been shown to be ineffective. If catches remain at or below the TAC (62000t for 2022-24 and 73011t for 2025) as required by the harvest strategy (Rec 22-01 updated by Rec 23-01, Rec 24-01), the stock have a >50% probability of being at or above B_{MSY}. The total catches for 2016-2019 have been 79897t, 78665t, 73077t and 75384t respectively, exceeding the TAC. However, reported catches were about 58kt, and 47kt in 2020 and 2021 respectively, notably below the TAC of 62500t for 2020 and 61500t for 2021. Total annual catch rose again in 2022-2023, close to and slightly above the TAC of 62000t. Catches appear to have been controlled, but not until the most recent years.

There are various weaknesses with TACs in ICCAT fisheries. The TAC is shared among many countries and control is not precise. The practice of allowing the carry forward of uncaught allocations in all fisheries effectively decreases the control on fishing mortality. ICCAT has had significant problems in implementing appropriate management measures for other species, indicating a higher risk should apply to all species under its auspices.

Evidence suggests that the fishery has struggled to apply the tool used to control exploitation. The observed limits and reductions in overall bigeye catch that have been achieved amount to some evidence that tools being used appropriate and effective. The recent catches (2020-2023) also suggest exploitation has been reduced and projections suggest that the stock will recover, which was the requirement for meeting SG60.

Although there has been a reduction in catches since 1994, this might be partly attributed to lower abundance rather than effective control. In addition, the TAC for bigeye tuna has most often been exceeded until recently. Therefore, available evidence does not indicate that the tools have been effective in achieving exploitation levels because even if current harvest levels are maintained, the delay in their implementation has probably delayed recovery. In the absence of evidence that current control is sufficient (such as from the MSE simulations), SG80 is not met yet. There are important signs that SG80 will be met in due course, however. Not only are recent catches within the TAC suggesting improved compliance, but ICCAT is applying a new schedule linking compliance issues to corresponding actions (Rec. 22-18) that lay out clearly how sanctions will be applied where parties fail to comply, including the application of trade measures (Rec. 06-13). Individual countries are improving their control and ICCAT is implementing payback plans for over-harvest (Rec. 23-02 and 23-03).

All SG60 were met, and 1 out of 3 SG80 were met.

PI 1.2.2 : 65

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P.1.2.3 Information / monitoring

1.2.3.a Range of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

Although data, particularly size data, have been generally poor and ICCAT has had considerable problems in maintaining accurate data in its database, the situation has been improving. There is adequate information on stock structure, productivity and the fleets to allow a full stock assessment to be completed and data were adequate to propose and evaluate a seasonal closure to reduce catches of small bigeye.

Furthermore, there is evidence that on-going research is planned to improve the information available and on-going development of data collection should be adequate to detect and remove problems. The working group has recommended studies on fecundity and maturity and a tuna tagging programme was initiated in 2015. Some data from the Atlantic Ocean Tropical Tuna Tagging

Programme (AOTTP) were available for the 2021 stock assessment and confirmed previous assumptions about growth rates. Continued analyses of the AOTTP data should reduce uncertainties over time, particularly with respect to growth, mortality and stock structure. Continuation of such tagging activities was also proposed. The 2021 stock assessment revised natural mortality estimates which encompassed a wide range of uncertainty and had a significant impact on stock assessment results.

Sources of errors in data collection are being investigated, leading to further directed research to reduce them. For example, there are on-going developments in the observer scientific data collection protocols for the different fleets, which provide accurate at-sea data. Estimates of catches from some fleets (e.g., Ghana) have clearly improved. These recent improvements result in SG80 being met. But the data are not comprehensive, and the suite of information is not fully supportive of the harvest strategy so SG100 is not met.

1.2.3.b Monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Stock abundance and UoA removals are monitored and **at least 1 indicator** is available and monitored with sufficient frequency to support the harvest strategy.	Stock abundance and UoA removals are **regularly monitored at a level of accuracy and coverage consistent with the harvest strategy**, and **1 or more indicators** are available and monitored with sufficient frequency to support the harvest strategy.	**All information** required by the harvest strategy is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent **uncertainties** in the information (data) and the robustness of assessment and management in dealing with this uncertainty.

Monitoring indices are adequate for the harvest strategy. Indicators of stock abundance mainly consist of standardised catch-per-unit-effort indices. Given the large areas of ocean and dispersal of the species, dedicated surveys are not an option for this type of fishery. For the 2018 stock assessment, a single consistent index was developed by combining data from the major longline fleets (Japan, Korea, United States and Chinese Taipei) to create a single consistent standardised CPUE time series 1959-2017. In 2021, updating the later years of the index (1979-2019) was limited to using aggregated data only (the COVID19 pandemic prevented necessary face-to-face meetings for sharing detailed operational data). In addition, a new FAD buoy index was developed to monitor juvenile bigeye. The fleet structure was revised significantly from the 2018 stock assessment.

SG80 is clearly met because at least one abundance indicator with wide coverage is monitored regularly, allowing a stock assessment sufficient to support the harvest strategy. Although available data have improved, there is not a ‘high degree of certainty’ in these data sets, nor do they all cover the entire time series, nor is there a full understanding of uncertainties, particularly in historical data. Further improvement, particularly as the tagging data set increases, could lead to an improvement in this score, but currently SG100 is not met.

1.2.3.c Comprehensiveness of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	There is good information on all other fishery removals from the stock.	

ICCAT operates a Statistical Document Program through recommendations 01-21 and 01-22, which establish very detailed programs for bigeye tuna and swordfish. Although not perfect, this sort of documentation scheme makes marketing IUU catch more difficult. Otherwise, catch data from some fleets have to be estimated and estimates are poor. ICCAT has demonstrated on-going improvements in obtaining more accurate "Task I" data. Overall, data on total removals from the stock from all significant sources is sufficient for SG80 to be met.

All SG60 and SG80 were met, and 0 out of 2 SG100 were met.

PI 1.2.3 : 80

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P.1.2.4 Assessment of stock status

1.2.4.a Appropriateness of assessment to stock under consideration		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment is appropriate for the stock and for the harvest strategy.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.

Various stock assessment models and software have been applied consisting of biomass dynamics models, virtual population analysis and integrated statistical model. All methods and model structures are standard versions used widely in stock assessment, but are structured to take advantage of the available data and attributes of the species. Available software includes a variety of methods also used in tuna and other fisheries. The standard model Stock Synthesis 3 (SS3) was used to develop a grid of alternative scenarios for management advice covering a range of plausible assumptions about key input parameters. A maximum likelihood (MPB) and state-space Bayesian (JABBA) biomass dynamics models were also fitted. These assessments are appropriate for the stock, current harvest strategy and available data; SG80 is met.

Fishery data is separated out into fleets and several standardised abundance indices are available, and some work has gone into evaluating growth, stock-recruitment "steepness", natural mortality rate and other parameters. These various features are covered well in the main assessment models. Some tagging data are also now available, and although data are limited at this stage, they are helping to improve the quality of the stock assessment model. The SS3 integrated statistical assessment model allows the incorporation of more detailed information, both for the biology of the species as well as fishery data, including the size data and selectivity by different fleet and gear components, and was therefore preferred over the more generic biomass dynamics models. Importantly SS3 allowed modelling of the changes in selectivity of different fleets and this was the preferred model to be used for the management advice. Compared to 2018, the 2021 stock assessment updated the data to 2019, and included some significant changes in natural mortality assumptions, the relative abundance indices used and the fleet structure of the model used for providing management advice. The stock assessment is responding to research and improving.

The stock assessment now takes into account the major features of the biology of bigeye tuna and of the fisheries, and so SG100 is met.

1.2.4.b Assessment approach		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.	

The stock assessments have been used to estimate the MSY-related reference points, and these have been used to determine stock status. This meets SG80.

1.2.4.c Uncertainty in the assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The assessment **identifies major sources** of uncertainty.	The assessment **takes uncertainty into account**.	The assessment evaluates stock status relative to reference points in a **probabilistic** way.

All ICCAT stock assessments attempt a probabilistic approach which is subsequently used, where there is sufficient information, to give management advice in the form of risk (projection tables and Kobe plots). Therefore, there is an argument that all assessments, where this is achieved, meet SG100. However, we have applied judgement whether the probabilities are really being estimated and whether probabilities are reported in a form suitable for decision making, such as in risk tables.

Stock assessment methods have been used to report uncertainty in estimates of stock status and other values of interest. They attempt to report information in a probabilistic way. Management advice was developed using a grid of 27 alternative model runs which captures the structural uncertainty in the assessment covering uncertainties in growth, stock-recruitment, and abundance indices. Therefore, the stock assessment has taken main sources uncertainty into account, meeting SG80.

The stock assessment scenario grid is used to provide probabilities for projections, so advice to management on alternative catch levels is probabilistic when evaluating stock status. This approach is consistent with other probabilistic stock assessments. Because the assessment uses probabilities in communicating uncertainty in stock status and scientific advice, SG100 is met.

1.2.4.d Evaluation of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.

The 2021 assessment was conducted using non-equilibrium production models (MPB, JABBA), and an integrated statistical model (SS3). The integrated statistical model (SS3) was used for management advice. The SS3 model applied an uncertainty grid with 27 model configurations to evaluate and represent major sources of structural uncertainty that included uncertainties in growth, mortality schedule, abundance index selection and data weighting. There remain gaps, a primary issue being missing size and effort information from some fleets. In addition, there was uncertainty about the change in longline index methodology since the 2018 assessment, which could not be incorporated into the uncertainty grid. However, the wide range of scenarios explored indicated that the stock assessment was robust and alternative stock assessment approaches continue to be rigorously explored, meeting SG100.

1.2.4.e Peer review of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment of stock status is subject to peer review.	The assessment has been **internally and externally peer** reviewed.

The stock assessment is subject to review through a working group process. SCRS meet annually and review models, data and research on the main tuna species as well as other species within ICCAT jurisdiction. In addition, external reviews have taken place for both the 2015 and 2018 stock assessment (although not for the 2021 assessment), indicating regular external reviews, so SG100 is met.

All SG60, SG80 and SG100 were met.

PI 1.2.4 : 100

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Atlantic Yellowfin

1.1 Outcome

P.1.1.1 Stock Status

1.1.1.a Stock status relative to recruitment impairment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
It is **likely** that the stock is above the point of recruitment impairment (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.

The best estimate of stock size for 2022 (ICCAT YFT-SAR 2024) indicates that the stock is approximately 137%B_{MSY} (80%CI 91-215%) in 2022. A Monte Carlo analysis was applied to examine the influence of adjusting key parameter inputs, and this generated a range of stock status outcomes. The default value for the PRI is taken here to be 20%B_0, which is 50%B_{MSY} (CR3.1 GSA2.2.3). The assessment also provided 95% confidence intervals for spawning stock biomass, and this distribution excluded the PRI in 2022 (assumed to be 20% B_0, with B_0 estimated to be the biomass in 1950 = 2.24 million t). Therefore, there is at least a 95% probability (a high degree of certainty) that the status of the stock is higher than the point of recruitment impairment, meeting SG100.

1.1.1.b Stock status in relation to achievement of maximum sustainable yield (MSY)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

Based on the 2024 assessment which considers catch, size and effort since the 1950s, it is likely that the stock was above the MSY level in 2022 (137% B_{MSY}), while the fishing mortality rate was about 89% of F_{MSY}. The 2019 assessment also estimated the stock to be above the MSY level (117% B_{MSY}), with a fishing mortality rate of 0.96 F_{MSY}.

However, since 2015, the total catch has consistently exceeded the median MSY levels estimated by assessments in 2016 (126304t, 80%CI: 119100, 151255t), 2019 (121298t, 90%CI 90428, 267350), and 2024 (MSY=121661t, 80% CI 107485-188456t), with total catch for the most recent 5-year period (2019-2023) averaging 140080t. These catches have also exceeded the yellowfin TAC of 110000t

that has been in place since 2012, and which was retained after the 2024 assessment (ICCAT Rec. 24-01). Because the median estimate of stock size trend was estimated to be above B_{MSY}, with no overfishing occurring for both the 2019 and 2024 assessments, the fishery meets SG80.

However, the B/B_{MSY} series has shown a continuous decline up until 2020, and the total annual catch has exceeded the MSY level since 2015, and by an average of 15% during 2019-2023. The continuing trend of excessive catches is not consistent with estimated expectations the stock size will continue to fluctuate around B_{MSY}. The evidence of continuous decline therefore does not imply a high degree of certainty that the stock has been fluctuating around or above the MSY level, and hence SG100 is not met.

All SG60 and SG80 were met, and 1 out of 2 SG100 were met.

PI 1.1.1 : 90

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1.2 Harvest Strategy (Management)

P.1.2.1 Harvest Strategy

1.2.1.a Harvest strategy design		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **expected** to achieve stock management objectives reflected in PI 1.1.1/PI 1.1.1A 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/PI 1.1.1A 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/PI 1.1.1A SG80.

ICCAT's objective is embedded in the preamble of its Convention finalised in 1966. The preamble states: "The Governments (…) considering their mutual interest in the populations of tuna and tuna-like fishes found in the Atlantic Ocean, and desiring to cooperate in maintaining the populations of these fishes at levels which will permit the maximum sustainable catch for food and other purposes". ICCAT's objective is therefore to maintain populations of tunas and tuna-like fishes at levels that will permit maximum sustainable yield (MSY).

Furthermore, Rec. 11-13 on the principles for decision making mandates that for stocks that are overfished and/or subject to overfishing (i.e., stocks not in the green quadrant of the Kobe plot), the Commission shall immediately adopt management measures designed to result in a high probability of ending overfishing and/or rebuild the stock in as short a period as possible, taking into account,

inter alia, the biology of the stock and SCRS scientific information and advice. Accounting for stock biology facilitates the inclusion of scientific advice about the PRI addressed at P1 1.1.1a, and which is required under the v3.1 MSC Standard.

ICCAT Rec. 15-07 has the intent of facilitating adoption of Management Procedures (MPs) with associated harvest control rules for ICCAT-managed stocks, applying Management Strategy Evaluation (MSE); these MPs offer the potential for more effective management of uncertainties. This intent is further supported by ICCAT Res. 15-12 that advocates application of the precautionary approach, in accordance with the relevant international standards.

ICCAT, being a regional organisation, provides a forum where the various countries exploiting tunas can work together to implement the strategy to meet this objective. The current strategy is to limit catches to sustainable levels based on a feedback process implemented by the Commission and primarily reduce bycatch of small bigeye and yellowfin tunas. Scientific advice is provided and a TAC with a seasonal closed area agreed through this process, which therefore also includes evaluation of, and adaptation to, changing circumstance.

The 2016 external review panel found that recent changes appear to have been made to the seasonal closure without reference to scientific advice, rendering this management action less effective. The TAC is also not implemented precisely and there has been an overshoot in recent years (see PI 1.2.2). The external review panel indicated that they thought more effective measures were needed to deal with the catch of small bigeye tuna. The Panel noted that, according to the SCRS, the area-time closure has not achieved its objective and therefore its impact on reducing juvenile catches of bigeye and yellowfin, is negligible. The panel recommended that this policy needs to be re-examined and this can, in part, be done through initiatives on limiting the number and use of FADs. Measures to improve FAD management were subsequently introduced (e.g. Rec. 19-02). The SCRS have carried out analyses to evaluate the benefit of the FAD time/area closure measure. This measure has been adjusted over the years, but the results of the management measure evaluations are not definitive. For the most recent closure measure, some preliminary evidence was presented, although it was clear that more analysis was required. In view of this and the fact that the closures have been subject to unplanned changes (e.g. Rec. 15-01, 16-01), the strategy cannot be considered to be designed. Current main controls are directed at catch limits on bigeye tuna as well as a TAC on yellowfin tuna, but include updated measures to strengthen overall FAD and fishing capacity limitations (Rec. 24-01).

SCRS is expected to refine the Management Strategy Evaluation (MSE) process and test CMPs during 2025-26. There is work on development of a tropical tuna multi-stock MSE, which will treat BEAT, YFAT, and SKAE stock status simultaneously. Successful completion of these initiatives should lead to a full harvest strategy with elements designed to work together for achievement of objectives.

For yellowfin, the strategy depends on the relative selectivity of the different fishing methods between yellowfin and bigeye tunas. While multispecies aspects of the catches have been explored in various analyses, there is no cohesive designed strategy to jointly manage these stocks. The reliance is on responding to detected problems rather than designing an approach to optimize the multispecies fisheries. For example, catches have exceeded the TAC since 2015 and there is no predefined plan of action to reduce them.

Therefore, a responsive harvest strategy has been developed that probably could succeed in achieving target stock levels, including maintaining the stock above the PRI, if TAC could be enforced (see PI 1.2.2), meeting SG80. However, the strategy being partly a side-effect of bigeye management and being relatively imprecise cannot be considered designed and therefore does not meet SG100.

1.2.1.b Harvest strategy evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **likely** to work based on prior experience or plausible argument.	The harvest strategy has been **tested** and is expected to meet the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80 or there is evidence that the harvest strategy is achieving its objectives reflected in PI 1.1.1/ PI 1.1.1A SG80.	The performance of the harvest strategy has been **evaluated** and evidence exists to show that it is achieving the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80, including being clearly able to maintain stocks at target levels.

The yellowfin fishing mortality is constrained by controls primarily intended to limit fishing mortality on bigeye tuna. The 2024 assessment showed that there was a 58% probability that the yellowfin stock was not overfished and was not subjected to overfishing. There is a TAC, but catches have exceeded it since 2015. Biomass was estimated to be 5% below B_{MSY} (2016 assessment), but has since been estimated above the MSY level (2019 and 2024 assessments). Overall, fishing mortality has been constrained (e.g. ICCAT Rec. 19-02, and 24-01) which amounts to some evidence that the harvest strategy has been working and is achieving its objectives, meeting SG80.

The approach to management appears somewhat ponderous and evidence that it will continue to work is limited, preventing a higher score. The system requires re-evaluation and resetting the TAC through Commission recommendations which must be accepted by the contracting parties on each occasion. There is no pre-agreement on how to react to stock changes (picked up by PI 1.2.2 below) and stock assessments required to evaluate management performance are not frequent given the stock is heavily exploited. While the 2019 stock assessment was requested at the 3-year milestone and 2 years earlier than planned, the latest assessment was conducted in 2024, at the 5 year milestone.

More broadly, the harvest strategy has only been developed in fairly narrow terms (total catch) and has not yet considered the wider context of the fishery through (for example) management strategy evaluations, so SG100 is not met. Initiatives to develop a suitable MSE (see information at 1.2.1a above) should lead to successful implementation of a more precise harvest strategy and accompanying evaluation practices that are required for score of SG100. Further the MSE will need to include consideration of the PRI, required under v3.1 of the MSC Standard.

1.2.1.c Harvest strategy monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Monitoring is in place that is expected to determine whether the harvest strategy is working.		

Monitoring is adequate to determine whether the harvest strategy is working. The different parts of the strategy include increasing the mean size and holding catches at the agreed TAC to avoid overfishing and biomass declines that cause the stock size to fall below MSY. Data are collected to estimate these quantities, despite there being considerable uncertainty associated with the accuracy of a large component of the catch monitoring. Also, the stock assessments regularly report estimates of biomass and biomass trend, which indicates whether management is achieving its objectives or not. Therefore, the fishery clearly meets SG60.

1.2.1.d Harvest strategy review		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The harvest strategy is periodically reviewed and improved as necessary.

The SCRS Working Group conducts a review of the statistics and science supporting each new assessment and also reviews the effect of current management regulations, as needed. However, there is no evidence of any formal review of the overall harvest strategy. Although the harvest strategy is reasonable, there is inadequate information available to indicate what improvements might be possible. The ICCAT performance reviews did specifically address future harvest strategies, but focused on past performance of ICCAT in meeting its objectives. Improvements to the harvest control rule and development of procedures through management strategy evaluations to test alternative strategies do indicate improvements in this regard, and it is possible that the current ICCAT processes could meet SG100 in future, but clearer evidence for real improvements is still required, particularly for yellowfin and bigeye. It is worth noting that development of management strategy evaluation is progressing for bigeye tuna, yellowfin tuna, and the eastern stock of skipjack tuna, and a final Management Procedure for western Atlantic skipjack is expected to be concluded in late 2025. At this stage, the fisheries do not meet SG100.

1.2.1.f Review of alternative measures		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There has been a review of **alternative measures** to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **review** every 5 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock and they are implemented as appropriate.	There is a **review** that happens every 2 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock, and they are implemented, as appropriate.

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. Under v3.1 of the MSC Standard, this must include measures regarding unwanted catch of the target species by ghost gear.

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.

A 2009 review and survey of ghost gear fishing of target species indicated a relatively low impact for longline and purse seine gear, although ghost fishing information on these gears was limited. It is reasonable, therefore, to assume that this statement remains applicable and that the main issue would arise from lost FADs associated with purse seine fishing. This review also considered preventative measures.

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). Quantification of discards generally depends upon the presence of at-sea observers, and observer coverage has generally been increasing. Discarding of target tunas has been considered low risk to the fisheries compared to other concerns.

Incorporating estimates of discards in catch estimates and the stock assessment amounts to a review of discards generally, but the scoring guideposts require a review of “measures” to minimise

discarding of the target stock rather than a review of discarding itself. Whether discards are significant enough to require a review to work out how to reduce them would need to be determined on a case-by-case basis. The nature and frequency of reviews for the effects of ghost fishing is much lower than for discards (see MSC Standard Version 3.1, SA2.4.5.1 and SA3.7.2.3). Nevertheless, while ghost fishing (e.g., lost FADs) may be significant risk to bycatch and ETP species, it is unlikely that they cause any significant mortality to the target tuna species as they either do no capture tuna (FADs) or are designed to require active fishing (purse seine nets, longline). Exceptions for some fisheries, like gillnets, might still apply, and national reviews might be required for these gears, particularly for ghost fishing.

For the purposes of scoring this issue here, estimation of discarding and evidence of response is used to indicate a review (i.e., considering levels of discard and by extension its reduction where possible).

In the case of tropical tuna fisheries using FADs, a joint meeting of tRFMOs in 2019 reviewed the science and advice for mitigating FAD impacts, including reducing the mortality of the juvenile tunas. This meeting considered research and technological findings that could, help, inter alia, to inform alternative management measures to reduce juvenile bigeye and yellowfin tuna mortality: FAD monitoring and tracking, to minimise the potential for lost or abandoned FADs to be fished by other vessels; the use of acoustic discrimination techniques for juvenile tuna species identification. The meeting also identified the need to investigate the effects of depth, behaviour, and selectivity of purse seine nets, which could inform alternative measures for reducing unwanted juvenile bigeye tuna mortality. Consideration of the impact of FADs on juvenile tunas and recommendations about specific mitigation measures to reduce those impacts are expected to be addressed in a follow-up meeting, which has not yet taken place. It should be noted that the capture of juvenile bigeye and yellowfin are not unwanted in the sense that they would be discarded, only their capture may constrain the skipjack fishery as well as cause growth overfishing and impact the spawning stock and other gears, such as longline. Therefore, this effectively is an attempt to change the joint fishery selectivity, not reduce unwanted catch.

While bycatch and discarding have been monitored, it is less clear what management actions, if any, have been undertaken to reduce discards of tuna in the ICCAT region. In response to the joint meeting of tRFMOs in 2019, a management measure was adopted with the intent of reducing discards primarily by the Atlantic tropical tuna purse seine fishery, but the review of this measure has been limited by data and reporting issues (ICCAT SCRS 2022).

There is no evidence of a formal review of measures to prevent discarding at the RFMO level, and to minimise all other UoA-related mortality of unwanted catch of the target stock. If such a review is required it would have to be done at the national level.

For stocks with significant purse seine fisheries, some discarding may occur. In response, ICCAT has Recommendation 17-01, which prohibits discarding unless properly justified and requires discards to be recorded. This measure, adopted in response to recommendations by ICCAT's Ad Hoc Working Group on FADs and a review by the SCRS, shows at the very least that discarding of tuna has been discussed and reviewed and that controls are being implemented. There have been reviews by an Ad Hoc Working Group on FADs during 2015-2017, and recommendations have been made mostly to improve data, research, and monitoring, but also to limit the number of FADs. The data improvement measures were adopted, as well as a FAD fishing limitation that is kept under review (e.g. ICCAT Rec. 15-01 and later recommendations). The Ad Hoc Working Group had also recommended a retention policy to reduce bycatch and discards.

As ICCAT Rec. 17-01 essentially prohibits discards except for certain conditions; the measure recognises marketing options for certain juvenile tunas. This may potentially reduce the amount of 'unwanted catch' by these fisheries if being assessed against the MSC Standard, Version 3.1 (see SA 3.1.1e).

The global reviews, together with reviews by ICCAT's Ad Hoc Working Group on FADs, and SCRS, allows these fisheries to at least meet SG60. In addition, given annual monitoring levels, prohibition of discarding, and consistently estimated low discard rates, SG80 should also be met. Without formal reviews, it is not clear this is sufficiently frequent to meet SG100.

All SG60 and SG80 were met, and 0 out of 4 SG100 were met.

PI 1.2.1 : 80

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P.1.2.2 Harvest control rules and tools

1.2.2.a HCRs design and application		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
HCRs are **expected to reduce the exploitation rate as the PRI is approached** and are either **generally understood** and **in place**, or **available**.	**Well-defined** HCRs **are in place** that **ensure** the exploitation rate is reduced as the PRI is approached, and are expected to keep the stock **fluctuating around** a target level consistent with (or above) MSY, or for key LTL species at levels 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**.

There is a harvest control rule in place but it is not well-defined and does not include a specific plan of control if the stock size falls below the maximum sustainable yield level. The intention inferred from the scientific advice and management response is to maintain the stock at or above the MSY level by maintaining the catch rates at or below F_{MSY}. Therefore, the "generally understood" HCR is to set catches low enough that the stock rebuilds to B_{MSY}, and subsequently set future catches so that the stock remains at this level. Precisely how this is done is unclear and how TACs are set, taking into account various uncertainties, is not defined. The HCR has not been tested in projections as it is too vague. Fixed catches have been tested in projections, but this does not meet requirements of an MSC harvest control rule. MSE work and development of HCRs for the Atlantic tropical tuna stocks are in progress, but not yet completed. First steps towards a MSE for southern Atlantic albacore have been taken (Res. 24-09), although a decision on final management objectives for incorporation into an MP is not expected until 2029. Northern Atlantic albacore has a well-defined HCR in place showing ICCAT's intent and progress on this issue.

It is also not clear how levels of yellowfin or skipjack catch relate to the target catch for bigeye or what would be done if a higher fishing mortality could be directed at yellowfin and skipjack. However, the management measures associated with the "generally understood" and applied HCR are extended to these species. This meets SG60.

SCRS is expected to refine the Management Strategy Evaluation (MSE) process and test CMPs during 2025-26. Development of a tropical tuna multi-stock MSE, which will treat bigeye, yellowfin, and eastern skipjack stock statuses simultaneously, is in its early stages. Successful completion of these initiatives, together with the relevant responsive actions would help the stock to achieve at least SG80.

The approach to controlling the harvest is broadly the same for yellowfin and bigeye tuna. Both are based primarily on setting TAC to control the exploitation rate (Rec. 24-01), but there are also vessel capacity limits and improving fish aggregation device (FAD) management (including a time-area closure, limits to the number of buoyed FADs per vessel and improved information for FAD management planning).

Past actions show clear evidence of intention to reduce harvest in the face of depletion and the scientific advice has indicated that the current level of control was adequate for the recovery of the bigeye stock to above the MSY level. However, more recently the stock has been reduced below the MSY reference point with fishing mortality being above F_{MSY}. Management has responded in Rec. 15-01 and subsequent recommendations that gave more attention to adjustment of FAD limitations and area/time closures (e.g. 16-01, 19-02, 24-01). But it is not clear to the SCRS whether those measures will be effective; for example, the TAC has not yet been adjusted in response to changes in the stock status, although specific limits on the capacity of some fleets have been applied and there is some

evidence that harvest rate has declined as a result. Adjustments in the TAC and management measures if the stock came under increased pressure are available. If implemented, these are expected to rebuild the stock. This meets SG60.

Without a well-defined harvest control rule, SG80 cannot be met. The current objective is to create an MSE framework in which to develop and then implement management procedures by 2026, although there have been significant delays in developing this framework. This scoring issue should meet SG80 at the time that HCR are adopted based on evidence from the MSE work.

1.2.2.b The robustness of HCRs to uncertainty		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

It is not possible to evaluate the harvest control in relation to uncertainties, because it has not been defined well enough to do so. The current TAC has been set for the period starting in 2012 at 110000t (Rec. 11-01), but was exceeded in every year except 2013, with the average total catch for 2019-2023 estimated to be 140,080t. While there is commitment to action of some sort should the TAC be exceeded, nothing has been specified. Therefore, SG80 cannot be met.

1.2.2.c Evaluation of HCRs		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

The current level of control, mainly through limits on fishing capacity and a catch limit (110000 t), has been exceeded since 2012, and since 2015 by a substantial amount. In 1993, the Commission recommended “that there be no increase in the level of effective fishing effort exerted on Atlantic yellowfin tuna, over the level observed in 1992”. The effective effort, as indicated by fishing mortality estimates from the 2024 stock assessment, appeared to be below (about 20% below) the 1992 levels in the mid-2000s, but increased subsequently above 1992 levels (by about 20%) in 2019, after which it decreased slightly before beginning to increase again after 2020. Fishing mortality remains below F_{MSY}.

Individual countries apply quota controls on their own and foreign fleets, which limits effective fishing effort on yellowfin in the surface and longline fisheries, although there is no quota allocation scheme as used for bigeye. If current yellowfin catches continue, the fishery objectives may not be met. Other tools are available in the form of area/ time closures.

Based on recent evidence, it is now questionable whether the tools are effective in controlling exploitation. Both bigeye and yellowfin have exceeded their TAC in recent years, which has always been a significant risk in this fishery. The TAC for yellowfin tuna has been exceeded by a notable amount since 2015, with the total catch overage in the more recent time period of 2019-2023

ranging from 11% in 2021 to 39% in 2020. It is not clear how much exploitation levels of yellowfin are a result of the side effect of controls on bigeye tuna (catches between bigeye and yellowfin appear correlated). Therefore, there is little evidence that the TAC and other tools being used are appropriate and/or effective at controlling exploitation, so SG60 is not met.

Only 1 out of 2 SG60 were met.

PI 1.2.2 : Fail

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P.1.2.3 Information / monitoring

1.2.3.a Range of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

Although data from some fleets have been generally poor and ICCAT has had considerable problems in maintaining accurate data in its database, there have been significant improvements over time. For yellowfin tuna, the data were sufficient for a stock assessment with several approaches possible. Overall, there was adequate information on stock structure, productivity and the fishing fleets to allow a full stock assessment to be completed.
There is evidence that on-going research has improved information and therefore the stock assessment. This suggests that on-going development of data collection is adequate to detect and remove problems over time. ICCAT scientists have undertaken studies to improve understanding of natural mortality, age and growth, fecundity and maturity of yellowfin tuna. Additionally, a tropical tuna tagging program was initiated in 2015, and the yellowfin tuna results were used to support improved stock assessment inputs from 2019. This demonstrates progress in data collection and research. Various scientific studies using available data are regularly presented at ICCAT scientific meetings. Sources of errors in data collection are being investigated, leading to further directed research to reduce them. There is evidence that data are being corrected and updated.
The level of information is becoming comprehensive, although some distinct gaps remain. There are considerable environmental data not directly used in the current harvest strategy. Although there have been improvements in information about age, mortality and abundance, the Working Group indicated a need to increase biological studies of yellowfin. With these remaining gaps, the fisheries exceed SG80 but do not fully meet SG100.

1.2.3.b Monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Stock abundance and UoA removals are monitored and **at least 1 indicator** is available and monitored with sufficient frequency to support the harvest strategy.	Stock abundance and UoA removals are **regularly monitored at a level of accuracy and coverage consistent with the harvest strategy**, and **1 or more indicators** are available and monitored with sufficient frequency to support the harvest strategy.	**All information** required by the harvest strategy is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent **uncertainties** in the information (data) and the robustness of assessment and management in dealing with this uncertainty.

Monitoring indices are adequate to inform implementation of the harvest strategy and are updated annually. Indicators of stock abundance mainly consist of standardized catch-per-unit-effort indices. Given the large areas of ocean and dispersal of the species, dedicated surveys are not an option for this type of fishery. Two abundance indices are available for the entire time series covering the majority range of the stock. The Japanese and Chinese Taipei's longline indices account for the longest time series and majority of the catch. A new index based on acoustic buoy data to estimate recruitment was added to the indices in 2019. In 2024, a joint longline index was developed, which made use of data from 5 major longline fleets; scientific justification supported adoption of this joint longline index instead of individual country longline indices for use in the 2024 assessment, alongside updated index series for the acoustic buoy data and the EU purse seine fleet targeting free schools. The 2009 external review panel recommended, among other things, that efforts be made to improve the timeliness and accuracy of fisheries data and progress on this was confirmed by the 2016 review panel, which believed that ICCAT has good data reporting for the target stocks.

This accuracy and coverage of the monitoring program is adequate for the limited current harvest control rule (see PI 1.2.2) and harvest strategy (PI 1.2.1.a), and available indicators would also support better defined rules based on fishing mortality and biomass estimates. Therefore, the fisheries meet SG80.

The monitoring does not cover all information, and not all information from all fleets is recorded with a high degree of certainty. Uncertainties are known to occur from many sources, but their precise nature is also not known. For example, landings rejected by canneries and sold in local West African markets ("*faux poisson*") since 1980s consist of many species and sizes; yellowfin tuna sold this way can only be estimated approximately, although some efforts to improve reporting of disaggregated "faux poisson" catches were reported in 2024. Although, there have been improvements with the introduction of electronic reporting and automated data processing, additional uncertainties in monitoring indices remained due to lack of information about the nature and/ or extent of operations for some new and developing fisheries. Therefore, the fisheries do not meet SG100.

1.2.3.c Comprehensiveness of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	There is good information on all other fishery removals from the stock.	

ICCAT has put considerable effort in getting countries to record and report catches. Electronic data forms were updated in 2023 to facilitate improved data collection, and the accompanying data automation processes were also improved. ICCAT prepares an annual report to assist scientists to identify where there may be gaps in catch reporting by species and country. The current level of reporting faces challenges given the number of small and/or developing countries involved with variable capacities, and difficulties in monitoring small vessels and activities in oceanic waters well away from the coast. This illustrates the on-going problems ICCAT faces with the contracting parties. Nevertheless, catches are recorded increasingly well with decreasing IUU fishing activity, and data are sufficiently well recorded in the most part for the stock assessment and for assessing the level of control sought by ICCAT over landed catches. This meets SG80.

All SG60 and SG80 were met, and 0 out of 2 SG100 were met.

PI 1.2.3 : 80

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P.1.2.4 Assessment of stock status

1.2.4.a Appropriateness of assessment to stock under consideration		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment is appropriate for the stock and for the harvest strategy.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.

Various stock assessment models and software were explored for the 2024 assessment, similar to the 2019 assessment: a biomass dynamics model (MPB), a state-space Bayesian biomass dynamics model (JABBA) and statistical age structured model (Stock Synthesis v3). All methods and model structures were standard models used in other fisheries, but were structured to take advantage of the available data and biology of yellowfin.

The stock assessment has not been carried out frequently, considering the stock has rebuilt from below the MSY level. However, this frequency is still consistent with the current harvest strategy.

The assessment attempts to account for key features of the species biology and the fishery. Fishery data is separated out into fleets and standardised, and steady effort has gone into evaluating growth, steepness, natural mortality rate and other parameters.

The 2024 assessment used a joint longline abundance index to deal with conflicting trends in individual fleet indices; the updated index was similar to that used for the 2019 assessment. A 10-times likelihood weight was applied to the joint longline index, as it provided the most information on long-term spawner biomass trends. The Stock Synthesis model incorporated a Monte Carlo approach, which facilitated improved exploration of uncertainty in influential input parameters such as natural mortality and steepness, and yielded results that are weighted in accordance with probability distributions of the resampling method applied. For these reasons, the Stock Synthesis model was considered an improvement over the method applied in 2019, and reflected the best understanding of stock status, compared to the results generated by the MPB and JABBA models. Hence the Stock Synthesis model was the only model used for management advice in 2024. As it is appropriate for application to the stock and informs the harvest strategy, the fishery meets SG80.

Additionally, the 2024 assessment considered the necessary assumptions required about species biology, and were able to incorporate updated assumptions about species growth and age-specific natural mortality based on new science. Assumptions about maturity and fecundity were also considered but not changed from the 2019 assessment. Length-based selectivity was estimated for UoA fleets (estimated directly for most fleets), and incorporated into the assessment to generate selectivity at age. The assessment therefore includes major features of species biology and UoA fleet characteristics, meeting SG100.

1.2.4.b Assessment approach		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.	

The stock assessments have been used to estimate the MSY-related reference points, and these have been used to determine stock status. This meets SG80.

1.2.4.c Uncertainty in the assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The assessment **identifies major sources** of uncertainty.	The assessment **takes uncertainty into account**.	The assessment evaluates stock status relative to reference points in a **probabilistic** way.

All ICCAT stock assessments attempt a probabilistic approach which is subsequently used, where there is sufficient information, to give management advice in the form of risk (projection tables and Kobe plots). Therefore, there is an argument that all assessments, where this is achieved, meet SG100. However, we have applied judgement whether the probabilities are really being estimated and whether probabilities are reported in a form suitable for decision making, such as in risk tables.

The 2024 assessment explored an age-structured model and two biomass dynamics models to the available catch data through 2022. The age-structured model facilitated better representation of stock status and was therefore the only model used to generate management advice.

The Stock Synthesis model incorporated a Monte Carlo approach, which facilitated improved exploration of uncertainty in influential input parameters such as natural mortality and steepness, and yielded results that are weighted in accordance with probability distributions of the resampling method applied.

Additional uncertainties in growth, age-slicing, mortality, index selection and data weighting were explored in nine sensitivity runs used in projections. This accounts for the identified major sources of uncertainty and fully takes account of uncertainty in the advice to management, meeting SG80. Given further work is probably required to obtain good quantitative estimates of uncertainty, SG100 is not met.

1.2.4.d Evaluation of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.

The 2024 assessment was conducted applying an age-structured Stock Synthesis model (Methot and Wetzel, 2013; version 3.30.18) to available input data through 2022. The assessment used a Monte Carlo resampling scheme, which considered 4000 iterations of random values of natural mortality

and of steepness taken from suitable 'prior' distributions. The parameter combination choices were screened for biological plausibility and convergence criteria. Based on this, the 2024 model results were shown to be robust to uncertainty. In addition, a wide range of alternative hypotheses and model structures were explored, meeting SG100.

1.2.4.e Peer review of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment of stock status is subject to peer review.	The assessment has been **internally and externally peer** reviewed.

The stock assessment is subject to review through a working group process. SCRS meet annually and review models, data and research on the main tuna species, as well as other species within ICCAT jurisdiction. An external review did take place for the 2019 assessment. Because there is clearly a review process through the working group system, SG80 is met. Because an external review of the 2019 stock assessment was conducted and the 2024 assessment continued to explore and develop the same assessment model approach, data and assumptions, it is reasonable to conclude that SG100 is met.

All SG60 and SG80 were met, and 3 out of 4 SG100 were met.

PI 1.2.4 : 95

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East Atlantic Skipjack

1.1 Outcome

P.1.1.1 Stock Status

1.1.1.a Stock status relative to recruitment impairment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
It is **likely** that the stock is above the point of recruitment impairment (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.

The 2022 Eastern Atlantic skipjack stock assessment estimated that the stock was highly likely above the B_{MSY} level in 2020, which in turn was highly likely to be above the point of recruitment impairment. Based on the median of an uncertainty grid formed from catch-at-age model (Stock Synthesis) and state-space production model (JABBA) model runs, the 2020 East Atlantic skipjack tuna stock was not overfished (median B_{2020}/B_{MSY} = 1.60) and was not undergoing overfishing (median F_{2020}/F_{MSY} = 0.63). As B_{MSY} was estimated by the assessment to be <27% B_0 (Kimoto *et al*. 2022) and information was not provided to suggest a PRI, a default precautionary PRI of 75% B_{MSY} is assumed (See GSA2.2.3, MSC Standard V). The assessment scenarios suggest that the stock is highly likely to be above this point, meeting the SG80.

The SCRS agreed to adopt 2 reference cases for the assessment. Stock management advice was informed by the joint distribution of projections obtained from both the Stock Synthesis and JABBA assessment models, and based on the uncertainty grids adopted. The uncertainty grid for the model runs addressed 18 separate scenarios concerning abundance index inclusion, and informed assumptions about growth and stock productivity (steepness). The two models were equally weighted, and runs within each modeling platform (JABBA, and Stock Synthesis) were also given equal weight. Stochastic projections were conducted for both model results, which indicated a very wide range of status results, e.g. the 95% confidence interval for B_{2020}/B_{MSY} ranged from 0.5 to 5.79, which includes the default PRI. Given this lack of confidence in the model outputs at this stage, and the wide range in status estimates, there is not a high degree of certainty that the stock is above the PRI, so the SG100 is not met.

1.1.1.b Stock status in relation to achievement of maximum sustainable yield (MSY)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

Based on the median of an uncertainty grid formed from catch-at-age (Stock Synthesis) and state-space production (JABBA) model runs, the East Atlantic skipjack tuna stock in 2020 was not overfished (median B_{2020}/B_{MSY} = 1.60, 83% probability) and was not undergoing overfishing (median F_{2020}/F_{MSY} = 0.63, 80% probability). A 2014 attempt to diagnose the state of the stock, in the absence of a quantitative approach, indicated that there was no decrease in yield, or in the average weight of fish caught. The total annual catch has been >200,000t since 2012, and averaged 233,209t during the more recent years of 2021-2023. According to the 2022 assessment, the constant total annual catch of 230,000t offers a 65% probability of the stock being above the MSY level in 2025. This meets SG80 because the stock is above or close to the MSY level.

However, the assessment noted a large uncertainty, with a resulting large range in the B_{2020}/B_{MSY} estimates, and therefore, in stock status estimates. Consequently, the current status is not estimated with a high degree of certainty above MSY, so SG100 is not met.

All SG60 and SG80 were met, and 0 out of 2 SG100 were met.

PI 1.1.1 : 80

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1.2 Harvest Strategy (Management)

P.1.2.1 Harvest Strategy

1.2.1.a Harvest strategy design		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **expected** to achieve stock management objectives reflected in PI 1.1.1/PI 1.1.1A 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/PI 1.1.1A 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/PI 1.1.1A SG80.

ICCAT's objective is embedded in the preamble of its Convention finalised in 1966. The preamble states: "The Governments (…) considering their mutual interest in the populations of tuna and tuna-like fishes found in the Atlantic Ocean, and desiring to cooperate in maintaining the populations of these fishes at levels which will permit the maximum sustainable catch for food and other purposes". ICCAT's objective is therefore to maintain populations of tunas and tuna-like fishes at levels that will permit maximum sustainable yield (MSY).

Furthermore, Rec. 11-13 on the principles for decision making mandates that for stocks that are overfished and/or subject to overfishing (i.e., stocks not in the green quadrant of the Kobe plot), the Commission shall immediately adopt management measures designed to result in a high probability of ending overfishing and/or rebuild the stock in as short a period as possible, taking into account, *inter alia*, the biology of the stock and SCRS scientific information and advice. Accounting for stock biology facilitates the inclusion of scientific advice about the PRI addressed at P1 1.1.1a, and which is required under the v3.1 MSC Standard.

ICCAT Rec. 15-07 has the intent of facilitating adoption of Management Procedures (MPs) with associated harvest control rules for ICCAT-managed stocks, applying Management Strategy Evaluation (MSE); these MPs offer the potential for more effective management of uncertainties. This intent is further supported by ICCAT Res. 15-12 that advocates application of the precautionary approach, in accordance with the relevant international standards.

The current hypothesis of two independent skipjack stocks (East and West) may be adequate for current management purposes, but the stock fishery indicators, and probably future stock assessments, may be improved if based on smaller more homogeneous areas.

The current strategy relevant to skipjack is to limit catches to sustainable levels based on a feedback process implemented by the Commission and to reduce bycatch of small bigeye tunas. There is currently no specific regulation in effect for skipjack tuna. Because the Eastern stock status was considered above the MSY reference point, no management recommendations were made by the Scientific Committee except catches should not be allowed to exceed the level of catch in recent years. Currently catches are estimated to be above MSY, but are constrained by controls on bigeye bycatch. Skipjack is notably caught with juvenile yellowfin and bigeye on FADs, which are being subject to further controls. Measures to reduce discarding by purse seiners (Rec. 17-01), and to improve FAD usage controls were subsequently introduced (e.g. Rec. 19-02).

Although a side-effect of controls on bigeye tuna catches, the harvest strategy appears to have been effective so far for skipjack. It is consistent with the multispecies nature of much of these fisheries, and appears likely to continue to achieve management objectives, meeting SG60. Although currently more advanced than the Western skipjack harvest strategy, it still has a number of anomalies making

it difficult to see how the different elements work together, and there is no formal agreement of a PRI. The FAD time/area closure has been subjected to management changes over the years, not always in agreement with the scientific advice, and with limited evidence of its impact provided so far. Furthermore, there is no specific skipjack control such as a TAC, the assumption being that controls on bycatch are adequate. Hence the harvest strategy appears indirect, and there isn't clarity on how the elements could work together for sustainable management of the stock.

In addition, catches increased 2014-2018 to 283kt possibly by more fisheries directed at skipjack due to increase in prices. Recent catch levels have been around 212kt in 2021, 268kt in 2022, and 220kt in 2023 (preliminary estimate) compared to the median estimate of MSY (estimated as 217kt in the most recent stock assessment).

SCRS is expected to refine the Management Strategy Evaluation (MSE) process and test CMPs during 2025-26. There is ongoing work on development of a tropical tuna multi-stock MSE, which will treat BEAT, YFAT, and SKAE stock status simultaneously (ICCAT YFT-DP 2024). Successful completion of these initiatives, together with the relevant responsive actions should lead to a full harvest strategy. In the meantime, more directed feedback and control will be required to meet SG80.

1.2.1.b Harvest strategy evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **likely** to work based on prior experience or plausible argument.	The harvest strategy has been **tested** and is expected to meet the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80 or there is evidence that the harvest strategy is achieving its objectives reflected in PI 1.1.1/ PI 1.1.1A SG80.	The performance of the harvest strategy has been **evaluated** and evidence exists to show that it is achieving the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80, including being clearly able to maintain stocks at target levels.

The harvest strategy for Eastern Atlantic skipjack is embodied in the harvest strategy in place for Atlantic tropical tunas. In the case of the Eastern skipjack stock, the most recent assessment showed that the skipjack stock is unlikely to be overfished, and that catches. Monitoring of catches and fishing effort and size composition is in place. The current constraints on fishing mortality (limits on effective fishing effort and other controls), which are aimed at bigeye and yellowfin tunas, are likely to benefit Eastern Atlantic skipjack stock status and maintain the stock above B_{MSY} and the default PRI, if appropriate action is taken in future and appropriate controls on FADs implemented. This meets the SG60.

Testing of the impact of the FAD closure on the catches of the tropical tunas, including Eastern Atlantic skipjack, has been undertaken at intervals, but is not definitive. This analysis is made more difficult by the frequent management-level adjustments to the closure conditions. The total annual catch of Eastern Atlantic skipjack has been >200,000t since 2012, and averaged 233,209t during the more recent years of 2021-2023. According to the 2022 assessment projections, a constant total annual catch at 230,000t offers a 65% probability of the stock still being above the MSY level in 2025, consistently reducing to 52% by 2028. This evidence does not include projections, relative to the status of the default PRI noted at 1.1.1a SG80. However, because of the current good stock status confirmed by the assessment, the use of information to make projections about future stock status under varying management scenarios, it can be argued that the evidence base is sufficient to indicate that current harvest strategy measures are meeting the objective of maintaining the stock at suitable levels, relative to B_{MSY} and the default PRI SG80. Hence the fishery meets SG80.

The harvest strategy is not yet well-defined and has not been evaluated, although MSE development is in progress. These fisheries do not meet SG100.

1.2.1.c Harvest strategy monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Monitoring is in place that is expected to determine whether the harvest strategy is working.		

Monitoring is adequate to determine whether the harvest strategy is working. Although the strategy is largely dependent on the bigeye and yellowfin harvest strategy, skipjack mean size and catch are monitored, which allows the effects of the harvest strategy on skipjack to be monitored. Data are collected to estimate these quantities. Also, the stock assessment reports best estimates of biomass, which indicates whether management is achieving its objectives or not. Therefore, the fishery clearly meets SG60.

1.2.1.d Harvest strategy review		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The harvest strategy is periodically reviewed and improved as necessary.

The SCRS Working Group conducts a review of the statistics and science supporting each new assessment and also reviews the effect of current management regulations, as needed. However, there is no evidence of any formal review of the overall harvest strategy. Although the harvest strategy is reasonable, there is inadequate information available to indicate what improvements might be possible. The ICCAT performance reviews did specifically address future harvest strategies, but focused on past performance of ICCAT in meeting its objectives. Improvements to the harvest control rule and development of procedures through management strategy evaluations to test alternative strategies do indicate improvements in this regard, and it is possible that the current ICCAT processes could meet SG100 in future, but clearer evidence for real improvements is still required, particularly for yellowfin and bigeye. It is worth noting that development of management strategy evaluation is progressing for bigeye tuna, yellowfin tuna, and the eastern stock of skipjack tuna, and a final Management Procedure for western Atlantic skipjack is expected to be concluded in late 2025. At this stage, the fisheries do not meet SG100.

1.2.1.f Review of alternative measures		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There has been a review of **alternative measures** to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **review** every 5 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock and they are implemented as appropriate.	There is a **review** that happens every 2 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock, and they are implemented, as appropriate.

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. Under v3.1 of the MSC Standard, this must include measures regarding unwanted catch of the target species by ghost gear.

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.

A 2009 review and survey of ghost gear fishing of target species indicated a relatively low impact for longline and purse seine gear, although ghost fishing information on these gears was limited. It is reasonable, therefore, to assume that this statement remains applicable and that the main issue would arise from lost FADs associated with purse seine fishing. This review also considered preventative measures.

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). Quantification of discards generally depends upon the presence of at-sea observers, and observer coverage has generally been increasing. Discarding of target tunas has been considered low risk to the fisheries compared to other concerns.

Incorporating estimates of discards in catch estimates and the stock assessment amounts to a review of discards generally, but the scoring guideposts require a review of “measures” to minimise discarding of the target stock rather than a review of discarding itself. Whether discards are significant enough to require a review to work out how to reduce them would need to be determined on a case-by-case basis. The nature and frequency of reviews for the effects of ghost fishing is much lower than for discards (see MSC Standard Version 3.1, SA2.4.5.1 and SA3.7.2.3). Nevertheless, while ghost fishing (e.g., lost FADs) may be significant risk to bycatch and ETP species, it is unlikely that they cause any significant mortality to the target tuna species as they either do no capture tuna (FADs) or are designed to require active fishing (purse seine nets, longline). Exceptions for some fisheries, like gillnets, might still apply, and national reviews might be required for these gears, particularly for ghost fishing.

For the purposes of scoring this issue here, estimation of discarding and evidence of response is used to indicate a review (i.e., considering levels of discard and by extension its reduction where possible).

In the case of tropical tuna fisheries using FADs, a joint meeting of tRFMOs in 2019 reviewed the science and advice for mitigating FAD impacts, including reducing the mortality of the juvenile tunas. This meeting considered research and technological findings that could, help, inter alia, to inform alternative management measures to reduce juvenile bigeye and yellowfin tuna mortality: FAD monitoring and tracking, to minimise the potential for lost or abandoned FADs to be fished by other vessels; the use of acoustic discrimination techniques for juvenile tuna species identification. The meeting also identified the need to investigate the effects of depth, behaviour, and selectivity of purse seine nets, which could inform alternative measures for reducing unwanted juvenile bigeye tuna mortality. Consideration of the impact of FADs on juvenile tunas and recommendations about specific mitigation measures to reduce those impacts are expected to be addressed in a follow-up meeting, which has not yet taken place. It should be noted that the capture of juvenile bigeye and yellowfin are not unwanted in the sense that they would be discarded, only their capture may constrain the skipjack fishery as well as cause growth overfishing and impact the spawning stock and other gears, such as longline. Therefore, this effectively is an attempt to change the joint fishery selectivity, not reduce unwanted catch.

While bycatch and discarding have been monitored, it is less clear what management actions, if any, have been undertaken to reduce discards of tuna in the ICCAT region. In response to the joint meeting of tRFMOs in 2019, a management measure was adopted with the intent of reducing discards primarily by the Atlantic tropical tuna purse seine fishery, but the review of this measure has been limited by data and reporting issues (ICCAT SCRS 2022).

There is no evidence of a formal review of measures to prevent discarding at the RFMO level, and to minimise all other UoA-related mortality of unwanted catch of the target stock. If such a review is required it would have to be done at the national level.

For stocks with significant purse seine fisheries, some discarding may occur. In response, ICCAT has Recommendation 17-01, which prohibits discarding unless properly justified and requires discards to be recorded. This measure, adopted in response to recommendations by ICCAT's Ad Hoc Working Group on FADs and a review by the SCRS, shows at the very least that discarding of tuna has been discussed and reviewed and that controls are being implemented. There have been reviews by an Ad Hoc Working Group on FADs during 2015-2017, and recommendations have been made mostly to improve data, research, and monitoring, but also to limit the number of FADs. The data improvement measures were adopted, as well as a FAD fishing limitation that is kept under review (e.g. ICCAT Rec. 15-01 and later recommendations). The Ad Hoc Working Group had also recommended a retention policy to reduce bycatch and discards.

As ICCAT Rec. 17-01 essentially prohibits discards except for certain conditions; the measure recognises marketing options for certain juvenile tunas. This may potentially reduce the amount of 'unwanted catch' by these fisheries if being assessed against the MSC Standard, Version 3.1 (see SA 3.1.1e).

The global reviews, together with reviews by ICCAT's Ad Hoc Working Group on FADs, and SCRS, allows these fisheries to at least meet SG60. In addition, given annual monitoring levels, prohibition of discarding, and consistently estimated low discard rates, SG80 should also be met. Without formal reviews, it is not clear this is sufficiently frequent to meet SG100.

All SG60 were met, and 2 out of 3 SG80 were met.

PI 1.2.1 : 75

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P.1.2.2 Harvest control rules and tools

1.2.2.a HCRs design and application		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
HCRs are **expected to reduce the exploitation rate as the PRI is approached** and are either **generally understood** and **in place**, or **available**.	**Well-defined** HCRs **are in place** that **ensure** the exploitation rate is reduced as the PRI is approached, and are expected to keep the stock **fluctuating around** a target level consistent with (or above) MSY, or for key LTL species at levels 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**.

There is a harvest control rule in place but it is not well-defined and does not include a specific plan of control if the stock size falls below the maximum sustainable yield level. The intention inferred from the scientific advice and management response is to maintain the stock at or above the MSY level by maintaining the catch rates at or below F_{MSY}. Therefore, the "generally understood" HCR is to set catches low enough that the stock rebuilds to B_{MSY}, and subsequently set future catches so that the stock remains at this level. Precisely how this is done is unclear and how TACs are set, taking into account various uncertainties, is not defined. The HCR has not been tested in projections as it is too vague. Fixed catches have been tested in projections, but this does not meet requirements of an MSC harvest control rule. MSE work and development of HCRs for the Atlantic tropical tuna stocks are in progress, but not yet completed. First steps towards a MSE for southern Atlantic albacore have been taken (Res. 24-09), although a decision on final management objectives for incorporation into an MP is not expected until 2029. Northern Atlantic albacore has a well-defined HCR in place showing ICCAT's intent and progress on this issue.

It is also not clear how levels of yellowfin or skipjack catch relate to the target catch for bigeye or what would be done if a higher fishing mortality could be directed at yellowfin and skipjack. However, the management measures associated with the "generally understood" and applied HCR are extended to these species. This meets SG60.

SCRS is expected to refine the Management Strategy Evaluation (MSE) process and test CMPs during 2025-26. Development of a tropical tuna multi-stock MSE, which will treat bigeye, yellowfin, and eastern skipjack stock statuses simultaneously, is in its early stages. Successful completion of these initiatives, together with the relevant responsive actions would help the stock to achieve at least SG80.

Adjustments in the TAC and management measures if the stock came under increased pressure are available, but these actions are not assured. Recent conservation measures have been extended to Eastern Atlantic skipjack (Rec. 16-01, 19-02, 21-01, 22-01, 23-01, 24-01). This meets SG60.

1.2.2.b The robustness of HCRs to uncertainty		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

It is not possible to evaluate the harvest control in relation to uncertainties, because it has not been defined well enough to do so. However, the skipjack fisheries are moving towards setting up harvest control rules. Until an appropriate management procedure can be implemented, SG80 is not met.

1.2.2.c Evaluation of HCRs		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

The current level of control, mainly through limits on fishing capacity and a bigeye tuna catch limit, has resulted in sustainable catch levels for skipjack tuna until recent years. There has so far been relatively little pressure on this stock compared to the more valuable tunas. Evidence is therefore limited to controls which could be placed on this species should this become necessary, and the proven ability of contracting parties to apply these limits.

The tools appear to have been effective in controlling exploitation, meeting SG60, although this is becoming increasingly difficult to argue with increasing catches. There is no TAC on skipjack. This evidence is limited to observing the outcomes, so that not all available controls have been tested, and therefore SG80 is not met.

All SG60 were met, but no SG80 or SG100.

PI 1.2.2 : 60

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P.1.2.3 Information / monitoring

1.2.3.a Range of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

Initial studies including tagging and others provide information related to stock structure. Basic biology of skipjack assists understanding of stock productivity. Fleets are monitored. These data are available to support the strategy. SG60 is met.

The 2022 data preparatory and stock assessment meetings reviewed updates on catch statistics, fisheries and biology information, and available and revised relative indices of abundance. During its 2022 data preparatory meeting, the working group considered new information on stock structure

(AOTTP tagging data results), which supported retention of the existing hypothesis of an eastern and western stock. The SCRS also accepted the stock assessment for advice, based on the current hypothesis of two independent skipjack stocks (East and West) being probably adequate for current management purposes.

There is evidence that on-going research is planned to improve information and therefore the stock assessment. This suggests that on-going development of data collection should be adequate to detect and remove problems in the long term. The most important issues encountered on productivity (stock-recruitment steepness and growth) were treated as uncertainties in the stock assessment and therefore have been addressed in the short term. Fleet composition and other data are adequate to support the stock assessment and harvest strategy. Therefore overall, there is sufficient relevant information related to stock structure, stock productivity, fleet composition and other data are available to support the harvest strategy, meeting the SG80.

While information is sufficient, it is not comprehensive. The working group has struggled to interpret the available data, and information on growth and recruitment remains limited. Hence, SG100 is not met.

1.2.3.b Monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Stock abundance and UoA removals are monitored and **at least 1 indicator** is available and monitored with sufficient frequency to support the harvest strategy.	Stock abundance and UoA removals are **regularly monitored at a level of accuracy and coverage consistent with the harvest strategy**, and **1 or more indicators** are available and monitored with sufficient frequency to support the harvest strategy.	**All information** required by the harvest strategy is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent **uncertainties** in the information (data) and the robustness of assessment and management in dealing with this uncertainty.

Stock abundance and fishery removals are monitored at a level consistent with the harvest strategy. There have been significant improvements in the data available to the stock assessment leading to a much-improved assessment in 2022. Data are predominantly catch-at-size and effort data, which are suitable for integrated stock assessments and surplus production models. Abundance indices now include corrections for environmental effects as well as abundance indices from FAD echosounders. In addition, there are other sources of information, such as tagging data, to support estimates of growth and mortality, suitable for improving the precision of these models. Data are sufficient to support a stock assessment and short-term projections of stock status in response to management controls, so meeting SG80. However, full information on recruitment and growth is clearly lacking, so SG100 is not met.

1.2.3.c Comprehensiveness of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	There is good information on all other fishery removals from the stock.	

ICCAT has put considerable effort in getting countries to record and report catches. Electronic data forms were updated in 2023 to facilitate improved data collection, and the accompanying data

automation processes were also improved. ICCAT prepares an annual report to assist scientists to identify where there may be gaps in catch reporting by species and country. The current level of reporting faces challenges given the number of small and/or developing countries involved with variable capacities, and difficulties in monitoring small vessels and activities in oceanic waters well away from the coast. This illustrates the on-going problems ICCAT faces with the contracting parties. Nevertheless, catches are recorded increasingly well with decreasing IUU fishing activity, and data are sufficiently well recorded in the most part for the stock assessment and for assessing the level of control sought by ICCAT over landed catches. This meets SG80.

All SG60 and SG80 were met, and 0 out of 2 SG100 were met.

PI 1.2.3 : 80

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P.1.2.4 Assessment of stock status

1.2.4.a Appropriateness of assessment to stock under consideration		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment is appropriate for the stock and for the harvest strategy.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.

At the 2022 stock assessment meeting, three models were used: two production models (JABBA and MPB) and an integrated statistical model (Stock Synthesis). The integrated statistical model was used to develop an uncertainty grid covering variations in (a) growth parameters and its impacts over natural mortality at age, and (b) steepness of stock productivity. In addition, for the Eastern stock

additional runs covered the comparison of two abundance indices which show different trends. Following preliminary and additional runs attempted, more development work was undertaken before the working group proposed 2 references cases to be used for the assessment and management advice. A joint distribution of projections was obtained from the Stock Synthesis and JABBA assessment models. The two models were equally weighted, and runs within each modeling platform (JABBA, and Stock Synthesis) were also given equal weight. Stochastic projections indicated a very wide range for stock biomass status.

Because the approach being developed is demonstrably appropriate to this stock and should be able to support the type of harvest strategy being considered, it meets SG80. The use of integrated catch-at-age statistical model has allowed the assessment to take into account the major features relevant to the biology of the stock and the UoA, which meets SG100.

1.2.4.b Assessment approach		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.	

For the Eastern skipjack stock, the model and assessment approach are appropriate. The latest (2022) assessment provides estimates of the MSY-related reference points, which have been used to determine stock status. This meets SG80.

1.2.4.c Uncertainty in the assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The assessment **identifies major sources** of uncertainty.	The assessment **takes uncertainty into account**.	The assessment evaluates stock status relative to reference points in a **probabilistic** way.

All ICCAT stock assessments attempt a probabilistic approach which is subsequently used, where there is sufficient information, to give management advice in the form of risk (projection tables and Kobe plots). Therefore, there is an argument that all assessments, where this is achieved, meet SG100. However, we have applied judgement whether the probabilities are really being estimated and whether probabilities are reported in a form suitable for decision making, such as in risk tables.

For both western and Eastern Atlantic skipjack stocks, major sources of uncertainty were identified during the data review and discussions at the stock assessment meeting. These were clearly documented in the meeting report, achieving SG60.

The two main modelling platforms used, the integrated statistical model and the state space production model, account for observation error and process error (random population processes). The uncertainty grid approach, widely used for tuna fisheries, also covers structural errors and assumptions, although it is mostly used to cover uncertainty in parameters which are not supported by the data. Therefore, the assessment clearly takes uncertainty into account, meeting the SG80.

Furthermore, uncertainty is modelled in a Bayesian way and used in projections as well as directly in management advice. This is a probabilistic approach to managing uncertainty and therefore meets SG100.

1.2.4.d Evaluation of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.

The Eastern Atlantic stock assessment, like the western stock, has been evaluated against alternative software, including Multifan CL, Stock Synthesis and various production models. The stock assessment has been tested against many alternative hypotheses, and preliminary results available suggest the new assessments may be robust. There are no obvious testable hypotheses that have not been covered yet. However, noting the preliminary nature of the robustness tests, SG100 is not fully met.

1.2.4.e Peer review of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment of stock status is subject to peer review.	The assessment has been **internally and externally peer** reviewed.

The stock assessment is subject to review through a working group process. SCRS meet annually and review models, data and research on the main tuna species as well as other species within ICCAT jurisdiction. This review process meets SG80. However, there was no evidence available yet of an external review, such as an independent review report, so SG100 is not met.

All SG60 and SG80 were met, and 2 out of 4 SG100 were met.

PI 1.2.4 : 90

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West Atlantic Skipjack

1.1 Outcome

P.1.1.1 Stock Status

1.1.1.a Stock status relative to recruitment impairment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
It is **likely** that the stock is above the point of recruitment impairment (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.

Two assessment models (catch-at-age Stock Synthesis and JABBA surplus production model) were used to evaluate the status of Western Atlantic Skipjack in 2022. Both models yielded similar results. As the Stock Synthesis model offers advantages of inclusion of stock life history data and fishery information, the Stock Synthesis model was selected to estimate stock status. The final stock status and management advice from the 2022 stock assessment are based on the combined results from 9 scenarios derived from the uncertainty grid proposed for the western skipjack stock. The 9 scenarios covered three alternative age-specific growth/mortality assumptions and three stock-recruitment steepness assumptions which were considered equally likely.

The B_{MSY} was analytically determined (17.2%-27.9%B_0), but varies significantly among the scenarios being sensitive to the assumed steepness. The PRI (limit reference point) is not provided. In almost all scenarios, B_{MSY} < 27%B_0, so a default 75%B_{MSY} is applied to determine PRI (GSA2.2.3). This suggests a default PRI around 17%B_0.

Based on these combined scenarios, the stock was estimated to be in healthy condition with 91% probability of being in the "Kobe green quadrant" (ICCAT SCRS 2022), that is the stock is not overfished (median B_{2020}/B_{MSY} = 160%, 95%CI [90% 287%]) nor undergoing overfishing (median F_{2020}/F_{MSY} = 41%, 95%CI[19%, 89%]). Given that the 95% confidence interval for B_{2020}/B_{MSY} is above the default PRI (75%B_{MSY}), this would suggest that there is a high degree of certainty that the stock is above its PRI, meeting the SG100.

1.1.1.b Stock status in relation to achievement of maximum sustainable yield (MSY)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

The 9 combined scenarios based on the 2022 integrated stock assessment (Stock Synthesis) indicated that the stock is estimated to be in healthy condition with 91% probability of the stock being not overfished (median estimate of B_{2020}/B_{MSY} = 1.60) and not undergoing overfishing (median estimate of F_{2020}/F_{MSY} = 0.41). This is evidence that the stock is at or fluctuating around a level consistent with the MSY requirement, meeting SG80.

Based on the same combined uncertainty estimates from the 9 model runs, there was a 6.2% estimated probability that the stock is overfished (below MSY). However, for the stock not to be "at or fluctuating around MSY", the stock would need to be below the MSY point with overfishing

occurring ($F>F_{MSY}$). For these scenarios, there was a 2.9% probability that this is the case, less than the 5% probability threshold required for a high degree of certainty. Because there is a high degree of certainty that the stock has not been depleted below the MSY level, and has been above this level over recent years, SG100 is met.

All SG60, SG80 and SG100 were met.

PI 1.1.1 : 100

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1.2 Harvest Strategy (Management)

P.1.2.1 Harvest Strategy

1.2.1.a Harvest strategy design		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **expected** to achieve stock management objectives reflected in PI 1.1.1/PI 1.1.1A 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/PI 1.1.1A 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/PI 1.1.1A SG80.

ICCAT's objective is embedded in the preamble of its Convention finalised in 1966. The preamble states: "The Governments (…) considering their mutual interest in the populations of tuna and tuna-like fishes found in the Atlantic Ocean, and desiring to cooperate in maintaining the populations of these fishes at levels which will permit the maximum sustainable catch for food and other purposes". ICCAT's objective is therefore to maintain populations of tunas and tuna-like fishes at levels that will permit maximum sustainable yield (MSY).

Furthermore, Rec. 11-13 on the principles for decision making mandates that for stocks that are overfished and/or subject to overfishing (i.e., stocks not in the green quadrant of the Kobe plot), the Commission shall immediately adopt management measures designed to result in a high probability of ending overfishing and/or rebuild the stock in as short a period as possible, taking into account, *inter alia*, the biology of the stock and SCRS scientific information and advice. Accounting for stock biology facilitates the inclusion of scientific advice about the PRI addressed at P1 1.1.1a, and which is required under the v3.1 MSC Standard.

ICCAT Rec. 15-07 has the intent of facilitating adoption of Management Procedures (MPs) with associated harvest control rules for ICCAT-managed stocks, applying Management Strategy Evaluation (MSE); these MPs offer the potential for more effective management of uncertainties.

This intent is further supported by ICCAT Res. 15-12 that advocates application of the precautionary approach, in accordance with the relevant international standards.

The current strategy relevant to skipjack is to limit catches to sustainable levels based on a feedback process implemented by the Commission and to reduce bycatch of small bigeye tunas. There is currently no specific regulation in effect for skipjack tuna. The Western stock status was considered above the MSY reference point, and so no management recommendations were made by the Scientific Committee except that catches should not be allowed to exceed MSY. Between 2001 and 2010, catches have been reported as below 30000t, a conservative estimate of the MSY. Catches in 2011-2013 exceeded 30000t while 2014 onwards are below that. Yet the estimated fishing mortality was below F_{MSY}. Catches above the replacement yield should lead to a decline in biomass towards the MSY level. Even with a decline in stock size, it will likely be several years before the stock approaches the MSY level, if the stock assessment is correct. Increasing harvests and fishing effort for skipjack could lead to consequences for the management of other species that are harvested in combination with skipjack in some fisheries (e.g., yellowfin in the Venezuelan purse seine fishery). There appears to be no strategy to manage this for the Western stock.

Western Atlantic skipjack was not explicitly included in the multiannual plans (Rec. 16-01, Rec. 19-02, Rec. 21-01, Rec. 22-01, Rec. 23-01, Rec. 24-01). Limits on fisheries catching bigeye probably do not apply to the Western skipjack stock. Without the limits on fleet activity created by bigeye tuna management recommendations which apply to the Eastern stock, there appears to be little in terms of strategy for Western stock beyond management responses which might be expected rather than demonstrated. However, under Resolution 22-02, ICCAT has convened a panel to undertake the development of initial operational management objectives for western skipjack. The management objectives should cover the current stock status, future risks of the stock falling below the PRI, the yield over short to long term periods and stability in limiting the TAC fluctuations from year to year. Work to propose, review and evaluate these objectives was advanced in 2023 and continued in 2024. A strategy, in the form of a Candidate Management Procedure (CMP) is being fine-tuned in 2025, and hence should be in place by the end of 2025 (ICCAT Rec. 24-04).

The stock status is above B_{MSY} and also the default PRI, and therefore it is understandable that there has been a lack of management measures as of yet. In the absence of the final MP, the basis of the harvest strategy is monitoring and stock assessment, with the ability to take action, if necessary (i.e., those mechanisms are available). This marginally meets SG60. But without clear evidence for a coordinated harvest strategy directed at Western skipjack, SG80 cannot be met.

1.2.1.b Harvest strategy evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **likely** to work based on prior experience or plausible argument.	The harvest strategy has been **tested** and is expected to meet the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80 or there is evidence that the harvest strategy is achieving its objectives reflected in PI 1.1.1/ PI 1.1.1A SG80.	The performance of the harvest strategy has been **evaluated** and evidence exists to show that it is achieving the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80, including being clearly able to maintain stocks at target levels.

In the case of the western skipjack stock, the fishing mortality has been constrained by fishery capacity and availability of bait, with a reported decrease in the number of Brazilian baitboat vessels. However, there have been recent developments in handline fisheries that have increased the average total annual catch of these fisheries about twelvefold during 2019-2023, compared to the average total annual catch reported for these fisheries in 2011-2015. The total annual catch for

2021-23 show an increasing trend, with a catch of 29555t being reported for 2023, which is below the estimated median MSY of 35277t (95%CI 28444-46340t).

The assessment showed that the skipjack stock is very unlikely to be overfished, but the stock may continue to decline towards the MSY level. Monitoring of catches and fishing effort and size composition is in place.

According to the assessment, if total annual catch is maintained at the median MSY level 35,000t, the stock has 85-87% probability of being above the MSY level in 2025, with this probability gradually reducing to 69-74% by 2028. This evidence does not include projections for the default PRI noted at 1.1.1a. That noted, in view of the good stock status confirmed by a stock assessment, the use of information that provide guidance about future stock status under varying management scenarios, and trends in recent total annual catch, it can be argued that the evidence base is sufficient to indicate that the harvest strategy is meeting the objective of maintaining the stock at suitable levels, relative to B_{MSY} and the default PRI SG80, although the latter is not explicitly addressed in the projections. The harvest strategy is being finalised through MSE development that is in a very advanced state. This meets SG80.

However, as the harvest strategy is still being fine-tuned, these fisheries do not yet meet SG100.

1.2.1.c Harvest strategy monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Monitoring is in place that is expected to determine whether the harvest strategy is working.		

Monitoring is adequate to determine whether the harvest strategy is working. Catch and effort are monitored to estimate total catch, CPUE and mean size. The stock assessment reports best estimates of biomass, which indicates whether management is achieving its objectives or not. Therefore, the fishery clearly meets SG60.

1.2.1.d Harvest strategy review		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The harvest strategy is periodically reviewed and improved as necessary.

The SCRS Working Group conducts a review of the statistics and science supporting each new assessment and also reviews the effect of current management regulations, as needed. However, there is no evidence of any formal review of the overall harvest strategy. Although the harvest strategy is reasonable, there is inadequate information available to indicate what improvements might be possible. The ICCAT performance reviews did specifically address future harvest strategies, but focused on past performance of ICCAT in meeting its objectives. Improvements to the harvest control rule and development of procedures through management strategy evaluations to test alternative strategies do indicate improvements in this regard, and it is possible that the current ICCAT processes could meet SG100 in future, but clearer evidence for real improvements is still required, particularly for yellowfin and bigeye. It is worth noting that development of management strategy evaluation is progressing for bigeye tuna, yellowfin tuna, and the eastern stock of skipjack tuna, and a final Management Procedure for western Atlantic skipjack is expected to be concluded in late 2025. At this stage, the fisheries do not meet SG100.

1.2.1.f Review of alternative measures		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There has been a review of **alternative measures** to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **review** every 5 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock and they are implemented as appropriate.	There is a **review** that happens every 2 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock, and they are implemented, as appropriate.

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. Under v3.1 of the MSC Standard, this must include measures regarding unwanted catch of the target species by ghost gear.

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.

A 2009 review and survey of ghost gear fishing of target species indicated a relatively low impact for longline and purse seine gear, although ghost fishing information on these gears was limited. It is reasonable, therefore, to assume that this statement remains applicable and that the main issue would arise from lost FADs associated with purse seine fishing. This review also considered preventative measures.

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). Quantification of discards generally depends upon the presence of at-sea observers, and observer coverage has generally been increasing. Discarding of target tunas has been considered low risk to the fisheries compared to other concerns.

Incorporating estimates of discards in catch estimates and the stock assessment amounts to a review of discards generally, but the scoring guideposts require a review of “measures” to minimise discarding of the target stock rather than a review of discarding itself. Whether discards are significant enough to require a review to work out how to reduce them would need to be determined on a case-by-case basis. The nature and frequency of reviews for the effects of ghost fishing is much lower than for discards (see MSC Standard Version 3.1, SA2.4.5.1 and SA3.7.2.3). Nevertheless, while ghost fishing (e.g., lost FADs) may be significant risk to bycatch and ETP species, it is unlikely that they cause any significant mortality to the target tuna species as they either do no capture tuna (FADs) or are designed to require active fishing (purse seine nets, longline). Exceptions for some fisheries, like gillnets, might still apply, and national reviews might be required for these gears, particularly for ghost fishing.

For the purposes of scoring this issue here, estimation of discarding and evidence of response is used to indicate a review (i.e., considering levels of discard and by extension its reduction where possible).

In the case of tropical tuna fisheries using FADs, a joint meeting of tRFMOs in 2019 reviewed the science and advice for mitigating FAD impacts, including reducing the mortality of the juvenile tunas. This meeting considered research and technological findings that could, help, inter alia, to inform alternative management measures to reduce juvenile bigeye and yellowfin tuna mortality: FAD monitoring and tracking, to minimise the potential for lost or abandoned FADs to be fished by other vessels; the use of acoustic discrimination techniques for juvenile tuna species identification. The meeting also identified the need to investigate the effects of depth, behaviour, and selectivity of purse seine nets, which could inform alternative measures for reducing unwanted juvenile bigeye

tuna mortality. Consideration of the impact of FADs on juvenile tunas and recommendations about specific mitigation measures to reduce those impacts are expected to be addressed in a follow-up meeting, which has not yet taken place. It should be noted that the capture of juvenile bigeye and yellowfin are not unwanted in the sense that they would be discarded, only their capture may constrain the skipjack fishery as well as cause growth overfishing and impact the spawning stock and other gears, such as longline. Therefore, this effectively is an attempt to change the joint fishery selectivity, not reduce unwanted catch.

While bycatch and discarding have been monitored, it is less clear what management actions, if any, have been undertaken to reduce discards of tuna in the ICCAT region. In response to the joint meeting of tRFMOs in 2019, a management measure was adopted with the intent of reducing discards primarily by the Atlantic tropical tuna purse seine fishery, but the review of this measure has been limited by data and reporting issues (ICCAT SCRS 2022).

There is no evidence of a formal review of measures to prevent discarding at the RFMO level, and to minimise all other UoA-related mortality of unwanted catch of the target stock. If such a review is required it would have to be done at the national level.

For stocks with significant purse seine fisheries, some discarding may occur. In response, ICCAT has Recommendation 17-01, which prohibits discarding unless properly justified and requires discards to be recorded. This measure, adopted in response to recommendations by ICCAT's Ad Hoc Working Group on FADs and a review by the SCRS, shows at the very least that discarding of tuna has been discussed and reviewed and that controls are being implemented. There have been reviews by an Ad Hoc Working Group on FADs during 2015-2017, and recommendations have been made mostly to improve data, research, and monitoring, but also to limit the number of FADs. The data improvement measures were adopted, as well as a FAD fishing limitation that is kept under review (e.g. ICCAT Rec. 15-01 and later recommendations). The Ad Hoc Working Group had also recommended a retention policy to reduce bycatch and discards.

As ICCAT Rec. 17-01 essentially prohibits discards except for certain conditions; the measure recognises marketing options for certain juvenile tunas. This may potentially reduce the amount of 'unwanted catch' by these fisheries if being assessed against the MSC Standard, Version 3.1 (see SA 3.1.1e).

The global reviews, together with reviews by ICCAT's Ad Hoc Working Group on FADs, and SCRS, allows these fisheries to at least meet SG60. In addition, given annual monitoring levels, prohibition of discarding, and consistently estimated low discard rates, SG80 should also be met. Without formal reviews, it is not clear this is sufficiently frequent to meet SG100.

All SG60 were met, and 2 out of 3 SG80 were met.

PI 1.2.1 : 75

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P.1.2.2 Harvest control rules and tools

1.2.2.a HCRs design and application		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
HCRs are **expected to reduce the exploitation rate as the PRI is approached** and are either **generally understood** and **in place**, or **available**.	**Well-defined** HCRs **are in place** that **ensure** the exploitation rate is reduced as the PRI is approached, and are expected to keep the stock **fluctuating around** a target level consistent with (or above) MSY, or for key LTL species at levels 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**.

Work has advanced on developing an appropriate harvest control rule, and a Candidate Management Procedure (CMP) was adopted in 2024 (ICCAT Rec. 24-04), with a process to adopt a final MP later in 2025. The HCR may not be entirely consistent with MSC criteria in respect of the choice of the limit reference point as 40%B_{MSY}. Given past progress being made towards an HCR and availability of controls should they been needed, the fishery meets SG60.

1.2.2.b The robustness of HCRs to uncertainty		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

It is not possible to evaluate the harvest control in relation to uncertainties, because it has not yet been defined well enough to do so. However, the skipjack fisheries are moving towards setting up harvest control rules.

For western Atlantic skipjack, a CMP was adopted in 2024, with agreement about the main uncertainties to be addressed and the expected level of robustness. The final MP is expected to be adopted in 2025, when it will inform TAC setting. Until an appropriate management procedure can be implemented, SG80 is not met.

1.2.2.c Evaluation of HCRs		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

The current level of control, mainly through limits on fishing capacity, has resulted in sustainable catch levels for skipjack tuna. The monitoring data suggest current levels of fishing effort are sustainable.

The tools appear to have been effective in controlling exploitation, meeting SG60. This evidence is limited to observing the results. There is no TAC on skipjack. Therefore, SG80 is not met.

All SG60 were met, but no SG80 or SG100.

PI 1.2.2 : 60

References

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P.1.2.3 Information / monitoring

1.2.3.a Range of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

Initial studies including tagging and others provide information related to stock structure. Basic biology of skipjack assists understanding of stock productivity. Fleets are monitored. These data are available to support the strategy. SG60 is met.

The 2022 data preparatory and stock assessment meetings reviewed updates on catch statistics, fisheries and biology information, and available and revised relative indices of abundance. During its 2022 data preparatory meeting, the working group considered new information on stock structure (AOTTP tagging data results), which supported retention of the existing hypothesis of an eastern and western stock. The SCRS also accepted the stock assessment for advice, based on the current hypothesis of two independent skipjack stocks (East and West) being probably adequate for current management purposes.

There is evidence that on-going research is planned to improve information and therefore the stock assessment. This suggests that on-going development of data collection should be adequate to detect and remove problems in the long term. The most important issues encountered on productivity (stock-recruitment steepness and growth) were treated as uncertainties in the stock assessment and therefore have been addressed in the short term. Fleet composition and other data are adequate to support the stock assessment and harvest strategy. Therefore overall, there is sufficient relevant information related to stock structure, stock productivity, fleet composition and other data are available to support the harvest strategy, meeting the SG80.

While information is sufficient, it is not comprehensive. The working group has struggled to interpret the available data, and information on growth and recruitment remains limited. Hence, SG100 is not met.

1.2.3.b Monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Stock abundance and UoA removals are monitored and **at least 1 indicator** is available and monitored with sufficient frequency to support the harvest strategy.	Stock abundance and UoA removals are **regularly monitored at a level of accuracy and coverage consistent with the harvest strategy**, and **1 or more indicators** are available and monitored with sufficient frequency to support the harvest strategy.	**All information** required by the harvest strategy is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent **uncertainties** in the information (data) and the robustness of assessment and management in dealing with this uncertainty.

Stock abundance and fishery removals are monitored at a level consistent with the harvest strategy. The indicators of stock abundance appear to provide a reasonably consistent picture of stock status and have been sufficient to support a stock assessment. Data are predominantly catch-at-size and effort data, which are suitable for integrated stock assessments and surplus production models. In addition, there are other sources of information, such as tagging data, to support estimates of growth and mortality, suitable for improving the precision of these models. Because these data are able to support a stock assessment and short-term projections of stock status in response to management controls, they meet SG80. However, full information on recruitment and growth is clearly lacking, so SG100 is not met.

1.2.3.c Comprehensiveness of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	There is good information on all other fishery removals from the stock.	

ICCAT has put considerable effort in getting countries to record and report catches. Electronic data forms were updated in 2023 to facilitate improved data collection, and the accompanying data automation processes were also improved. ICCAT prepares an annual report to assist scientists to identify where there may be gaps in catch reporting by species and country. The current level of reporting faces challenges given the number of small and/or developing countries involved with variable capacities, and difficulties in monitoring small vessels and activities in oceanic waters well away from the coast. This illustrates the on-going problems ICCAT faces with the contracting parties. Nevertheless, catches are recorded increasingly well with decreasing IUU fishing activity, and data are sufficiently well recorded in the most part for the stock assessment and for assessing the level of control sought by ICCAT over landed catches. This meets SG80.

All SG60 and SG80 were met, and 0 out of 2 SG100 were met.

PI 1.2.3 : 80

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P.1.2.4 Assessment of stock status

1.2.4.a Appropriateness of assessment to stock under consideration		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment is appropriate for the stock and for the harvest strategy.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.

At the 2022 stock assessment meeting, three models were used: two production models (JABBA and MPB) and an integrated statistical model (Stock Synthesis), and fitted to both the Eastern and western skipjack data. The integrated statistical model was used to develop an uncertainty grid covering variations in (a) growth parameters and its impacts over natural mortality at age, and; (b) steepness of stock productivity. For western skipjack, all the models showed reasonably stable fits and it was agreed to use these results for management advice. Notably, the stock status estimates of the surplus production and integrated models were similar, although the surplus production model results were not carried through to management advice.

The stock assessment models and software that have been applied have covered a range of assumptions and allowed the working group to find a suitable approach leading to a consistent fit to the data. It has been demonstrated that the model is appropriate for the stock and for a harvest strategy, meeting SG80.

The stock assessment has significantly improved over that applied in 2014, and not only are estimates more precise, but there is a better understanding of the uncertainties. Using an integrated catch-at-age statistical model in particular has allowed the assessment to take into account the major features relevant to the biology of the stock, which meets SG100.

1.2.4.b Assessment approach		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.	

The stock assessments have been used to estimate the MSY-related reference points, and these have been used to determine stock status. This meets SG80.

1.2.4.c Uncertainty in the assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The assessment **identifies major sources** of uncertainty.	The assessment **takes uncertainty into account**.	The assessment evaluates stock status relative to reference points in a **probabilistic** way.

All ICCAT stock assessments attempt a probabilistic approach which is subsequently used, where there is sufficient information, to give management advice in the form of risk (projection tables and Kobe plots). Therefore, there is an argument that all assessments, where this is achieved, meet SG100. However, we have applied judgement whether the probabilities are really being estimated and whether probabilities are reported in a form suitable for decision making, such as in risk tables.

For both western and Eastern Atlantic skipjack stocks, major sources of uncertainty were identified during the data review and discussions at the stock assessment meeting. These were clearly documented in the meeting report, achieving SG60.

The two main modelling platforms used, the integrated statistical model and the state space production model, account for observation error and process error (random population processes). The uncertainty grid approach, widely used for tuna fisheries, also covers structural errors and assumptions, although it is mostly used to cover uncertainty in parameters which are not supported by the data. Therefore, the assessment clearly takes uncertainty into account, meeting the SG80.

Furthermore, uncertainty is modelled in a Bayesian way and used in projections as well as directly in management advice. This is a probabilistic approach to managing uncertainty and therefore meets SG100.

1.2.4.d Evaluation of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.

The Western Atlantic stock assessment, like the eastern stock, has been evaluated against alternative software, including Multifan CL, Stock Synthesis and various production models. The stock assessment has been tested against many alternative hypotheses, and preliminary results available suggest the new assessments may be robust. There are no obvious testable hypotheses

that have not been covered yet. However, noting the preliminary nature of the robustness tests, SG100 is not fully met.

1.2.4.e Peer review of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment of stock status is subject to peer review.	The assessment has been **internally and externally peer** reviewed.

The stock assessment is subject to review through a working group process. SCRS meet annually and review models, data and research on the main tuna species as well as other species within ICCAT jurisdiction. This review process meets SG80. However, there was no evidence available yet of an external review, such as an independent review report, so SG100 is not met.

All SG60 and SG80 were met, and 2 out of 4 SG100 were met.

PI 1.2.4 : 90

References

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Indian Ocean Albacore

1.1 Outcome

P.1.1.1 Stock Status

1.1.1.a Stock status relative to recruitment impairment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
It is **likely** that the stock is above the point of recruitment impairment (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.

The MSY reference point for biomass was estimated as approximately 23%B_0. The interim limit reference point set by IOTC (Resolution 15/10) is 40%B_{MSY}, which results in a limit reference point of ~9%B_0. This is below the MSC default limit reference point (20%B_0) and below the default PRI 75%B_{MSY}, if B_{MSY} is below 27%B_0 (MSC CR v3.1 GSA2.2.3) as in this case. In terms of levels of precaution consistent with MSC criteria, we use 75%B_{MSY} (17%B_0) as the PRI rather than the IOTC LRP.

The 2022 assessment was an update of the age-structured statistical model (Stock Synthesis v3: SS3) used in 2019, with WPTmT-approved revisions in the treatment of data inputs. The SS3 analyses in 2019 suggested that biomass has declined to about 26% of the unexploited level, but the 2022 update was more optimistic, estimating B_{2020}/B_0 at 36% (80% CI 26-45%). As the lower 80% confidence limit is above the default MSC PRI of 75%B_{MSY}, the fishery meets SG80. F_{2022} was estimated at well below F_{MSY} (F_{2020}/F_{MSY} = 68% (80% CI 42-94%), unlike in 2019 which estimated that the stock was overfished.

Inspection of the model results (e.g. see Fig. 23, Rice 2022) shows that across all model runs, only a small proportion of outputs (<<5%) were likely below the PRI proxy for 75%B_{MSY}. SG100 is met.

1.1.1.b Stock status in relation to achievement of maximum sustainable yield (MSY)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

Based on the 2022 stock assessment, the stock was classified as not being overfished (B_{2020} = 156%B_{MSY}; 80%CI 89%-224%), with overfishing not occurring (F_{2020} = 68%F_{MSY}; 80%CI 42%-94%). SG80 is met.

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 F_{MSY} with greater than 95% probability, but B_{2021} was above B_{MSY} with around 95% probability (lower 95% CI overlapping the B_{MSY} 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 two previous assessment results are considered to inform the degree of confidence in the status.

The 2016 assessment estimated that B_{2014} = 180%B_{MSY} and the 2019 assessment estimated B_{2017} = 128.1%B_{MSY} (95% CI 57.4%-207.1%). The 2022 SS3 stock assessment showed a continuous downward trend in stock size which has not yet reached the MSY level and fishing mortality was highly likely below the MSY level in 2020. Although the catches in 2022 rose slightly above the MSY level, this followed a period of catches below MSY. Overall, this implies a high degree of certainty that the stock has been above MSY over recent years; SG100 is met.

All SG60, SG80 and SG100 were met.

PI 1.1.1 : 100

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1.2 Harvest Strategy (Management)

P.1.2.1 Harvest Strategy

1.2.1.a Harvest strategy design		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **expected** to achieve stock management objectives reflected in PI 1.1.1/PI 1.1.1A 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/PI 1.1.1A 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/PI 1.1.1A SG80.

IOTC's objectives include the adoption, on the basis of scientific evidence, conservation and management measures to ensure the conservation of the stocks and to promote the objective of their optimum utilisation throughout the Indian Ocean. A "Compendium of Active Conservation and Management Measures for the Indian Ocean Tuna Commission" is maintained which sets out the resolutions currently active. Therefore, the harvest strategy objective is to maintain stock levels at or above the biomass which would produce MSY. This was established as an interim target 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. Scientific advice 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.

Links among the strategy components appear to be weak and it is unclear whether the harvest strategy has been fully responsive or that the management components are working together with the scientific advice. Catches reduced in 2011-2013, but increased again in 2014-2018. Mean catches 2017-2021 are estimated at 38497t, which was above the MSY estimate until the 2022 stock assessment. However, the 2022 stock assessment results were more optimistic, with a higher estimate of MSY and an improved picture of stock status; it seems that contrary to previous conclusions, the stock is likely not overfished. However, this is not a function of the harvest strategy but instead to changes in assessment assumptions and inputs.

It is not clear that catch reductions since 2000 were due to any particular management action and management advice for this stock points to displacement of longline effort due to piracy as an important factor in albacore catches. Catches during 2022-2023 have risen again and are higher than 2007-2010 and very close to high levels observed in 2013-2014. This does not suggest the fishery is under tight management control. Although reductions in fishing effort had been recommended by the scientific committee for a number of years, no such reduction has yet been implemented (e.g., capacity reduction initiatives are not effective), suggesting that the system is slow to respond for this stock. The SG60 is met on the basis that the harvest strategy has broadly worked in stopping an overall upward trend in exploitation rates, although this may be attributed as much to circumstance as the harvest strategy. It appears at least possible that the exploitation level could increase to levels inconsistent with stated management aims, and would lead to failure to meet SG60. CPCs have indicated that they might increase capacity in this fishery. Therefore, in its current form, there is significant doubt that the harvest strategy will be fully effective in the longer term, so SG60, but not SG80, is met.

1.2.1.b Harvest strategy evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **likely** to work based on prior experience or plausible argument.	The harvest strategy has been **tested** and is expected to meet the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80 or there is evidence that the harvest strategy is achieving its objectives reflected in PI 1.1.1/ PI 1.1.1A SG80.	The performance of the harvest strategy has been **evaluated** and evidence exists to show that it is achieving the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80, including being clearly able to maintain stocks at target levels.

Based on the 2022 stock assessment, the stock has been classified as not overfished and not suffering from overfishing. It was previously thought that fishing effort was too high. There is no pre-agreement on how to react to stock changes (picked up by PI 1.2.2 below). Current average catch for 2022-23 are marginally higher than the 2022 assessment 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 in 2019, for example and catch reductions proposed), meeting SG60, evidence that it will work is still lacking, so SG80 cannot be met.

1.2.1.c Harvest strategy monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Monitoring is in place that is expected to determine whether the harvest strategy is working.		

Monitoring is adequate to determine whether the harvest strategy is working. Indicators are regularly estimated and reported by the relevant Working Party, including catches and stock status indicators. In addition, there is a regular external RFMO review which looks at issues relevant to the harvest strategy. Therefore, SG60 is met.

1.2.1.d Harvest strategy review		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The harvest strategy is periodically reviewed and improved as necessary.

There is no evidence of any formal review of the harvest strategy. The harvest strategy is still under development, with plans to introduce more precise control over exploitation, and to improve monitoring, compliance, scientific advice and decision making. Performance reviews have been conducted on the RFMO, but these have focused on the wider issues (compliance, funding, CPC participation) and past performance rather than specifically on developing a harvest strategy for the future. Because this falls short of the detail review of options for a species-specific harvest strategy that this scoring issue requires, SG100 is not met. Currently IOTC is developing a comprehensive management strategy evaluation for its tuna fisheries. MSE work for albacore is now in its final

phase. In carrying out this task, it might be argued that the overarching strategy is also being reviewed, so SG100 could be met towards the end of this process.

1.2.1.f Review of alternative measures		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There has been a review of **alternative measures** to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **review** every 5 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock and they are implemented as appropriate.	There is a **review** that happens every 2 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock, and they are implemented, as appropriate.

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. Under v3.1 of the MSC Standard, this must include measures regarding unwanted catch of the target species by ghost gear.

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.

A 2009 review and survey of ghost gear fishing of target species indicated a relatively low impact for longline and purse seine gear, although ghost fishing information on these gears was limited. It is reasonable, therefore, to assume that this statement remains applicable and that the main issue would arise from lost FADs associated with purse seine fishing. This review also considered preventative measures.

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). Quantification of discards generally depends upon the presence of at-sea observers, and observer coverage has generally been increasing. Discarding of target tunas has been considered low risk to the fisheries compared to other concerns.

Incorporating estimates of discards in catch estimates and the stock assessment amounts to a review of discards generally, but the scoring guideposts require a review of “measures” to minimise discarding of the target stock rather than a review of discarding itself. Whether discards are significant enough to require a review to work out how to reduce them would need to be determined on a case-by-case basis. The nature and frequency of reviews for the effects of ghost fishing is much lower than for discards (see MSC Standard Version 3.1, SA2.4.5.1 and SA3.7.2.3). Nevertheless, while ghost fishing (e.g., lost FADs) may be significant risk to bycatch and ETP species, it is unlikely that they cause any significant mortality to the target tuna species as they either do no capture tuna (FADs) or are designed to require active fishing (purse seine nets, longline). Exceptions for some fisheries, like gillnets, might still apply, and national reviews might be required for these gears, particularly for ghost fishing.

For the purposes of scoring this issue here, estimation of discarding and evidence of response is used to indicate a review (i.e., considering levels of discard and by extension its reduction where possible).

There is no evidence of a formal review of measures to prevent discarding at the RFMO level, and to minimise all other UoA-related mortality of unwanted catch of the target stock. If such a review is required, it would have to be done at the national level.

Discarding of target tunas by longline and line gears, the major gears for albacore tuna in the IOTC region, is thought to be very low. Therefore, this issue is not scored.

All SG60 were met, but no SG80 or SG100.

PI 1.2.1 : 60

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P.1.2.2 Harvest control rules and tools

1.2.2.a HCRs design and application		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
HCRs are **expected to reduce the exploitation rate as the PRI is approached** and are either **generally understood** and **in place**, or **available**.	**Well-defined** HCRs **are in place** that **ensure** the exploitation rate is reduced as the PRI is approached, and are expected to keep the stock **fluctuating around** a target level consistent with (or above) MSY, or for key LTL species at levels 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**.

There is no well-defined harvest control rule and therefore there is no specific plan of control if the stock size falls below the maximum sustainable yield level. There is evidence of intention to reduce harvest should depletion occur and the scientific advice is prepared to make recommendations to that effect if it were to occur. Controls, including indirect effects, limit fishing effort and catches through various conservation measures (see the Compendium of Active CMM).

There is an interim decision framework with reference points (Res. 15/10) for all tunas and swordfish, which is being applied in management advice. This includes the intention to develop harvest control rules (HCRs) using simulations and guidelines in the UNFSA and the IOTC Agreement. The stated objectives, based on the status phase plot, are in place, interim MSY reference points have been defined, and IOTC Res. 15/10 includes a programme of work for development and assessment of HCRs. In the meantime, Res. 15/10 represents the generally understood HCR for albacore tuna where exploitation rates are to be reduced in some way where the stock falls below the interim target level. To support this, fishery management advice includes probabilities of the risk of breaching the agreed interim target and limit reference points for various catch level scenarios. This meets SG60.

Management strategy evaluations (MSE) are being undertaken as a way to develop a robust strategy and harvest control rules should form part of this. Because the MSE will require decision-making to be simulated, the tested rules will need to be well defined. IOTC is currently working to develop an

MSE for albacore, and when this process is complete, a well-defined HCR should be in place. Until that time, the fishery does not meet SG80.

1.2.2.b The robustness of HCRs to uncertainty		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

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. The interim decision framework clearly intends that reference points and HCR under development (Res. 15/10) will be robust and this is identified as one of the criteria for evaluation. Management strategy evaluation and the development of management procedures that include a suitable HCR are underway for albacore (final phase) and yellowfin tuna (initial phase). Once a suitable HCR is developed consistent with Resolution 15/10 and is implemented, SG80 would be likely met.

1.2.2.c Evaluation of HCRs		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

In the case of albacore, there has been no reduction in fishing effort despite the previous scientific advice indicating that such a reduction has been necessary for precautionary management under the current harvest strategy. The 2022 stock assessment update suggested that in fact a reduction in fishing effort is not necessary, but this is a function of changes to the assessment, not to the harvest strategy. Therefore, although tools may be available to implement an HCR, these have yet to demonstrate effectiveness in reducing fishing mortality.

A level of control to respond to excess fishing pressure has not been demonstrated partially because biomass has remained above or around that which would produce MSY (the stated target). 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).

Therefore, meeting the SG60 relies on arguments that controls are available to be implemented if needed, as demonstrated by the rebuilding plan for yellowfin tuna. However, because yellowfin was not able to show rebuilding when that was the objective, it does appear that while tools are available they may take too long to apply. This is a common problem in international fisheries where

consensus may take considerable time to obtain (and is the main argument for well-defined HCR). Just as evidence of appropriate and effective action might be used to argue controls are available, failure of one stock to apply “available” controls in a timely manner is evidence that tools may not be appropriate or effective in other untested cases. This suggests that SG60 is not met.

Without a well-defined HCR already in place, it may now be difficult to meet this scoring issue. Successful controls in place for yellowfin would help argue available controls would be effective for albacore as well, although even in this case the difficulties in getting consensus and likely conflicts of controls between fisheries and species may now require direct evidence of successful implementation.

Only 1 out of 2 SG60 were met.

PI 1.2.2 : Fail

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P.1.2.3 Information / monitoring

1.2.3.a Range of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

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; SG80 is met.

SG100 requires a comprehensive range of information. The Secretariat provide a summary of data issues to the stock assessment data preparation workshop, which notes that only 78% of nominal catch data were fully reported, with the remainder having gaps that were filled in by estimation. However, this is considered to be an improvement on previous years. Discard data is also lacking (although assumed to be negligible). 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 that would improve confidence in stock assessments. SG100 is not met.

1.2.3.b Monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Stock abundance and UoA removals are monitored and **at least 1 indicator** is available and monitored with sufficient frequency to support the harvest strategy.	Stock abundance and UoA removals are **regularly monitored at a level of accuracy and coverage consistent with the harvest strategy**, and **1 or more indicators** are available and monitored with sufficient frequency to support the harvest strategy.	**All information** required by the harvest strategy is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent **uncertainties** in the information (data) and the robustness of assessment and management in dealing with this uncertainty.

Where there are gaps in nominal catch monitoring, IOTC follows a structured process, tailored to characteristics and data quality by fleet, to obtain the best scientific estimates. Catch and effort monitoring has been good by the main longline fleets, with some having used a logbook system for

many years. Monitoring of catches and indices from several fleets' standardized CPUE 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. Although data are limited, stock assessments have been successfully completed, demonstrating that data are now sufficient to support the harvest strategy, so SG80 is met. Given the data limitations, SG100 is not met.

1.2.3.c Comprehensiveness of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	There is good information on all other fishery removals from the stock.	

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, superseded by Res. 24/06), which with an observer programme should result in more reliable statistics from the main purse seine fleets. Also relevant to the purse seine vessels, IOTC Res. 24/02, intended to optimise DFAD management, has established a DFAD monitoring system to improve scientific data collection, including detailed catch information for this major fishery component. Overall, data are sufficient to meet SG80. While some problems exist, they are being addressed and do not increase the risk for the assessment and management of the stocks.

All SG60 and SG80 were met, and 0 out of 2 SG100 were met.

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P.1.2.4 Assessment of stock status

1.2.4.a Appropriateness of assessment to stock under consideration		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment is appropriate for the stock and for the harvest strategy.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.

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 or attributes of the fleets, so SG100 was not met.

1.2.4.b Assessment approach		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.	

All tuna stock assessments have been used to estimate the MSY and other reference points, and these have been used to determine stock status. This meets SG80.

1.2.4.c Uncertainty in the assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The assessment **identifies major sources** of uncertainty.	The assessment **takes uncertainty into account**.	The assessment evaluates stock status relative to reference points in a **probabilistic** way.

All IOTC stock assessments attempt a probabilistic approach which is subsequently used, where there is sufficient information, to give management advice in the form of risk (projection tables and Kobe plots). Therefore, there is an argument that all assessments, where this is achieved, meet SG100. However, we have applied judgement whether the probabilities are really being estimated and whether probabilities are reported in a form suitable for decision making, such as in risk tables.

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 combined across the model grid and presented in 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, meeting SG80 and SG100.

1.2.4.d Evaluation of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.

The stock assessments over the years have reviewed a range of models and software in identifying the appropriate approach to the stock assessment. As well as SS3 and SCAC, used in 2022, software has included various Bayesian and state-space biomass dynamics models, and age-structured production models. However, the way the model is configured also needs to be rigorously explored. 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 ICCAT 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 was not met.

1.2.4.e Peer review of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment of stock status is subject to peer review.	The assessment has been **internally and externally peer** reviewed.

The stock assessments are reviewed through the Working Party system of the IOTC's Scientific Committee. The Second IOTC Performance Review recommended that external peer review of stock assessments be incorporated as standard best practice. This would be especially important if the assessments are not just updates.

External experts are regularly invited to participate in the Working Party meetings. However, the structure of the WP meeting has limited the degree of both external and internal review. Levels of review are clearly adequate to meet SG80.

It is not clear that recent albacore assessments have been subjected to external peer review with an independent report available. The IOTC has budgeted for invited independent experts to attend working party meetings in 2025. This may provide the external peer review for the albacore assessment work in the future. At present, the fishery does not meet SG100.

All SG60 and SG80 were met, and 1 out of 4 SG100 were met.

PI 1.2.4 : 85

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Indian Ocean Bigeye

1.1 Outcome

P.1.1.1 Stock Status

1.1.1.a Stock status relative to recruitment impairment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
It is **likely** that the stock is above the point of recruitment impairment (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.

According to the 2022 stock assessment, B_{2021} was estimated at 25%B_0 (80% CIs 23%-27%), and 90%B_{MSY} (75-105%). This means that the assessment estimates B_{MSY} at ~28%B_0.

The PRI is not estimated directly, and MSC proposes various proxies: 20%B_0, or 50%Bmsy (14%B_0) if B_{MSY}>27%B_0, otherwise 75% B_{MSY} (21%B_0). The adopted interim biomass limit reference point for bigeye tuna is 50% B_{MSY} (Res. 15/10). The estimate of stock status provided for management purposes is that the stock is above all these values with >10% probability, as the lower 80% confidence limit is 23%B_0. SG80 is met.

An inspection of all the outputs from the range of sensitivity models run in Stock Synthesis shows that there were no outputs <50%B_{MSY}, but there were some below 20%B_0, and we do not have sufficient information to say whether this represents >5% probability overall. SG100 is not met.

1.1.1.b Stock status in relation to achievement of maximum sustainable yield (MSY)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

According to the 2022 stock assessment, B_{2021} was estimated at 90%B_{MSY} (80% CIs 75%-105%), while F_{2021} was estimated at 1.43* F_{MSY} (1.10-1.77). Considering also that there appears to have been a consistent downward trend in biomass, based on evidence from the 2016, 2019 and 2022 assessments, this does not indicate that the stock is fluctuating around MSY, but highlights a steadily decreasing trend in biomass to the current level below MSY (see MSC CR v3.1, GSA 2.2.2). It is therefore highly probable that the stock is below the MSY level and is being overfished. SG80 is not met.

All SG60 were met, and 1 out of 2 SG80 were met.

PI 1.1.1 : 70

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P.1.1.2 Stock Rebuilding

1.1.2.a Rebuilding timeframes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 that does not exceed **1 generation time** for the stock.

In 2022 IOTC adopted a management procedure for bigeye (Res. 22/03) with the management objective of achieving B_{MSY} with a probability of 60% by 2034-2038. Taking a generation time for bigeye tuna of ~7 years, MSC require a rebuilding timeframe of at most 2 x the generation time – i.e., ~14 years; i.e. within the range set by IOTC. Although 2038 is currently ~16 years away, the objective of achieving B_{MSY} with 60% probability actually requires rebuilding to a level above B_{MSY}, so overall the rebuilding timetable as set out in Res. 22/03 seems appropriate. SG60 is met.

SG100 requires rebuilding within at most one generation – i.e. up to ~2029. WPTT considered whether the current stock assessment ($F>F_{LIM} = 1.3\ F_{MSY}$) should constitute an 'exceptional

circumstance' but concluded that it should not, and the management procedure should be applied as planned. Up to 2024, no exceptional circumstances have been identified, and so the existing MP and rebuilding timeframe remain in place. SG100 is not met.

1.1.2.b Rebuilding evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 <b>specified time	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**.

Monitoring is in place sufficient to conduct a quantitative stock assessment every three years, and to estimate stock status in relation to reference points, as required by the management procedure. The TAC was calculated by WPTT under the management procedure to be 80583t for 2024-25, which would require a 15% reduction in catch from 2021 levels. Catch is estimated by IOTC every year, so it will be possible to evaluate whether the TAC required by the management procedure is being implemented. The next stock assessment should normally take place in 2025, covering the first year in which the TAC was applied. SG60 is met.

The current stock trajectory is downwards so there is no evidence as yet of rebuilding. The management procedure, applied from 2024, was established based on a MSE and has therefore been evaluated to be robust to various uncertainties, and able to achieve the management objective within the required timeframe. WPTT considered whether anything in the 2022 stock assessment required IOTC to invoke 'exceptional circumstances' (including $F>F_{LIM}$) but concluded that the results were within the scope of the operating models for the MSE. Consideration of exceptional circumstances in 2024-25 did not yield any recommendation to change the MP, and the MP-derived TAC of 92670t for 2026-2028 is being proposed for adoption by the Commission. Therefore, as long as the TAC can be applied, the management procedure should be able to rebuild the stock to the management objective within the specified timeframe.

However, the management procedure has been applied only from 2024. Of concern is that catches have continued to increase through 2022-2023, making it more difficult to achieve catch decreases in accordance with the TAC recommendation by 2024-2025. In 2023, the total catch was estimated to be 105751t, which is also in excess of the 2026-2028 TAC allocation, and not achieving the catch reduction will prevent MP success. Without clear evidence of rebuilding, MSC stipulate that current F should be $<F_{MSY}$ to justify a score of 80 or above, which is not the case (see 1.1.1.b). Furthermore, considering the situation of another tropical tuna stock, skipjack tuna, Res. 21/03 sets an HCR for skipjack which specifies a catch limit, but catches have consistently exceeded the HCR limit because of disagreement about allocations.

Therefore, there can reasonably be some scepticism as to whether the 15% reduction in catch required to apply the TAC will be realised in 2024-2025. SG80 is not met.

All SG60 were met, but no SG80 or SG100.

PI 1.1.2 : 60

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1.2 Harvest Strategy (Management)

P.1.2.1 Harvest Strategy

1.2.1.a Harvest strategy design		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **expected** to achieve stock management objectives reflected in PI 1.1.1/PI 1.1.1A 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/PI 1.1.1A 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/PI 1.1.1A SG80.

IOTC's objectives include the adoption, on the basis of scientific evidence, conservation and management measures to ensure the conservation of the stocks and to promote the objective of their optimum utilisation throughout the Indian Ocean. A "Compendium of Active Conservation and Management Measures for the Indian Ocean Tuna Commission" is maintained which sets out the resolutions currently active. Therefore, the harvest strategy objective is to maintain stock levels at or above the biomass which would produce MSY. This was established as an interim target reference point under Res. 15/10.

The harvest strategy consists of a statistical monitoring system, scientific assessment of the performance of various controls on exploitation, and decision making consistent with well-defined objectives and procedures. Resolution 22/03 sets out a management procedure for Indian Ocean bigeye tuna, including a management objective (B_{MSY} with at least 60% probability, to be achieved by 2034-38), reference points (target: F_{MSY} and B_{MSY}; limit: $50\%B_{MSY}$, $1.3F_{MSY}$; as per Res. 15/10), a HCR

which is used for setting a TAC (every three years but initially for 2024-2025), a TAC change constraint of 15% and provisions for applying exceptional circumstances and for review. This is supported by stock assessments every three years (providing the basis for recalculating the TAC every three years), monitoring and data collection etc. The management procedure was designed using a MSE process. In 2023, the procedure was applied to set the TAC and included a catch allocation scheme for the major harvesting flag states (Res. 23/04).

Other measures complement the strategy. This included two closed areas: IOTC Resolution 12/13 (superseded IOTC Res. 10/01) closed area 0°-10° N. and 40°-60° E., during February to longline vessels, and during November to purse seine vessels, but which was removed under IOTC Resolution 14/02; and, a voluntary minimum 31-day closure across national fleets excluding artisanal vessels < 12 m LOA fishing within their EEZs (IOTC Res. 23/03). IOTC Res. 24/06 and similar preceding resolutions (IOTC Res. 13-11 through to IOTC Res. 19/05), aimed at banning discards of the tropical tunas, would help to control fishing capacity and hence overall fishing mortality. Other recent positive developments are Res. 23/01 and Res. 24/02, aimed at improving controls for effective management of both anchored fish aggregating devices (AFADs) and drifting fish aggregating devices (DFADs) respectively, the latter associated with increased mortality of juvenile yellowfin and bigeye tunas, as well as other negative ecological and environmental impacts.

The MP represents a designed harvest strategy to achieve stock management objectives, and has been supported by a suite of management measures. The harvest strategy has been improved over time in accordance with scientific advice, to be responsive to the state of the stock. SG100 is met.

1.2.1.b Harvest strategy evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **likely** to work based on prior experience or plausible argument.	The harvest strategy has been **tested** and is expected to meet the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80 or there is evidence that the harvest strategy is achieving its objectives reflected in PI 1.1.1/ PI 1.1.1A SG80.	The performance of the harvest strategy has been **evaluated** and evidence exists to show that it is achieving the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80, including being clearly able to maintain stocks at target levels.

The management procedure (IOTC Res. 22/03) has been tested using MSE, however, it is not achieving its objective as yet, because it has not been used to set a TAC until Resolution 23/04. However, we can consider that it is likely to work, so SG60 is met.

In relation to SG80, because there is not yet any evidence as to whether management objectives are being achieved (because the management procedure has only just been applied), we have to evaluate based on the controls applied in 2022 and 2023. Since the 2022 stock assessment considered that $B<B_{MSY}$ and $F>F_{MSY}$, it is reasonable to conclude that there is no evidence that management objectives are being achieved, as this represented a further decline in stock status compared to the previous two assessments, and catches continued to increase during 2022-2023. Some direct evidence is required of successful implementation. SG80 is not met yet.

1.2.1.c Harvest strategy monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Monitoring is in place that is expected to determine whether the harvest strategy is working.		

Monitoring is adequate to determine whether the harvest strategy is working. Indicators are regularly estimated and reported by the relevant Working Party, including catches and stock status indicators. In addition, there is a regular external RFMO review which looks at issues relevant to the harvest strategy. Therefore, SG60 is met.

1.2.1.d Harvest strategy review		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The harvest strategy is periodically reviewed and improved as necessary.

The management procedure in Res. 22/03 was established based on a MSE process, which considered a wide range of hypotheses and uncertainties. It provides for a review of the operation of the management procedure in 2030. During ongoing MP implementation, there is a process for annual review of certain MP inputs to identify any exceptional circumstances that may warrant an alternative management response. Because there is now evidence of review and improvement for this stock, SG100 is met.

1.2.1.f Review of alternative measures		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There has been a review of **alternative measures** to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **review** every 5 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock and they are implemented as appropriate.	There is a **review** that happens every 2 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock, and they are implemented, as appropriate.

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. Under v3.1 of the MSC Standard, this must include measures regarding unwanted catch of the target species by ghost gear.

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.

A 2009 review and survey of ghost gear fishing of target species indicated a relatively low impact for longline and purse seine gear, although ghost fishing information on these gears was limited. It is reasonable, therefore, to assume that this statement remains applicable and that the main issue would arise from lost FADs associated with purse seine fishing. This review also considered preventative measures.

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). Quantification of discards generally depends upon the presence of at-sea observers, and observer coverage has generally been increasing. Discarding of target tunas has been considered low risk to the fisheries compared to other concerns.

Incorporating estimates of discards in catch estimates and the stock assessment amounts to a review of discards generally, but the scoring guideposts require a review of “measures” to minimise discarding of the target stock rather than a review of discarding itself. Whether discards are significant enough to require a review to work out how to reduce them would need to be determined on a case-by-case basis. The nature and frequency of reviews for the effects of ghost fishing is much lower than for discards (see MSC Standard Version 3.1, SA2.4.5.1 and SA3.7.2.3). Nevertheless, while ghost fishing (e.g., lost FADs) may be significant risk to bycatch and ETP species, it is unlikely that they cause any significant mortality to the target tuna species as they either do no capture tuna (FADs) or are designed to require active fishing (purse seine nets, longline). Exceptions for some fisheries, like gillnets, might still apply, and national reviews might be required for these gears, particularly for ghost fishing.

For the purposes of scoring this issue here, estimation of discarding and evidence of response is used to indicate a review (i.e., considering levels of discard and by extension its reduction where possible).

In the case of tropical tuna fisheries using FADs, a joint meeting of tRFMOs in 2019 reviewed the science and advice for mitigating FAD impacts, including reducing the mortality of the juvenile tunas. This meeting considered research and technological findings that could, help, inter alia, to inform alternative management measures to reduce juvenile bigeye and yellowfin tuna mortality: FAD monitoring and tracking, to minimise the potential for lost or abandoned FADs to be fished by other vessels; the use of acoustic discrimination techniques for juvenile tuna species identification. The meeting also identified the need to investigate the effects of depth, behaviour, and selectivity of purse seine nets, which could inform alternative measures for reducing unwanted juvenile bigeye tuna mortality. Consideration of the impact of FADs on juvenile tunas and recommendations about specific mitigation measures to reduce those impacts are expected to be addressed in a follow-up meeting, which has not yet taken place. It should be noted that the capture of juvenile bigeye and yellowfin are not unwanted in the sense that they would be discarded, only their capture may constrain the skipjack fishery as well as cause growth overfishing and impact the spawning stock and other gears, such as longline. Therefore, this effectively is an attempt to change the joint fishery selectivity, not reduce unwanted catch.

There is no evidence of a formal review of measures to prevent discarding at the RFMO level, and to minimise all other UoA-related mortality of unwanted catch of the target stock. If such a review is required, it would have to be done at the national level.

The main concern with discards of tuna appears to apply to the purse seine fleet. Discarding is clearly subject to review, and resolutions are proposed and discussed at meetings.

A ban on discards of bigeye, yellowfin and skipjack tunas, except for fish unfit for human consumption, has been in place for several years (IOTC Res. 13/11 with updates through to IOTC Res. 24/06), which has been mandatory for purse seine vessels and with the most recent IOTC Res. 24/06 including a provision encouraging vessels using other gear types to retain these tuna catches. The intention of this measure appears to consider the need to fulfil IOTC objectives regarding conservation and management of bigeye tuna, skipjack tuna, and yellowfin tuna, alongside consideration of the international directives concerning minimisation of discards, as well as socio-economic consequences of fish wastage, and the need to promote sustainable fishing practices. It also highlights the importance of purse seine vessel discards of both target and non-target species, suggesting that some level of review of at least active purse seine gear operations has taken place.

While the impact on ghost fishing may be low for purse seine and other gears, IOTC Res. 23/01 and 24/02 respond to international directives on the need to minimise the negative impacts of AFADs and DFADs respectively, including on juveniles, and of abandoned, lost or discarded fishing gear (ALDFG) and plastic residues through measures for effective marking, identification, and for recovery of such gear in the case of DFADs.

Both IOTC Res. 24/06 and IOTC Res. 24/02 are designed to yield more information about UoA-related mortality of unwanted target catch and both have provisions for technical review of the information gathered, including performance of the measures and consideration of other alternative measures that could be applied in the future. In the case of Res. 24/06, it is not clear though if the review includes target tunas, but it has potential to do so.

This shows at the very least that discarding of tuna is discussed and reviewed regularly and that controls are being implemented, meeting SG80. It is not clear this review is biannual, so SG100 is not met.

All SG60 were met, and 2 out of 3 SG80 were met.

PI 1.2.1 : 75

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P.1.2.2 Harvest control rules and tools

1.2.2.a HCRs design and application		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
HCRs are **expected to reduce the exploitation rate as the PRI is approached** and are either **generally understood** and **in place**, or **available**.	**Well-defined** HCRs **are in place** that **ensure** the exploitation rate is reduced as the PRI is approached, and are expected to keep the stock **fluctuating around** a target level consistent with (or above) MSY, or for key LTL species at levels 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**.

Resolution 22/03 establishes a management procedure for IO bigeye tuna, including an HCR. The HCR is used to establish a value of HCR_{mult}, which is set to 1 when biomass depletion (B/B_0) is at or above 0.4, and decreases linearly to (close to) zero at biomass depletions at or below 0.1. The TAC is then set as a function of the estimated biomass from the stock assessment, F/F_{MSY} and HCR_{mult}, with a 15% constraint (i.e., maximum change of 15% relative to the previous TAC). The HCR was used to set a TAC for 2024-25 (Res. 23/04), and will be used to set TACs subsequently every 3 years, aligned with the stock assessment timetable.

This is well-defined, responsive to the state of the stock and reduces the exploitation rate linearly when below $40\%B_0$, to around zero below $B=10\%B_0$. It should be able to maintain the stock around or above B_{MSY} (since B_{MSY} is estimated by the stock assessment at $<40\%B_0$). The management objective is to maintain the stock at this level with at least 60% probability. The management procedure has been evaluated using an MSE, but has not been in place for long. Because the HCR has been tested through simulation, it is expected to maintain the stock at the desired level, meeting SG80. Bigeye tuna was determined to be overfished and subjected to overfishing in 2022, and the HCR is being applied from 2024. Hence how well the HCR is expected to work in practice and how often management interventions will be required is not known yet. Also, the HCR does not explicitly take account of the ecological role of the stock, and so SG100 is not met.

1.2.2.b The robustness of HCRs to uncertainty		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

The MSE used to develop the management procedure for bigeye considered a wide range of uncertainties, including the stock-recruit curve shape and steepness, CPUE standardisation and error, recruitment errors and recruitment failure, growth, natural mortality, tagging data, catchability and selectivity. Robustness tests included over catch (with and without reporting), effort creep and recruitment failure. It also has provision for 'exceptional circumstances' to be invoked should a circumstance arise outside the scope of the MSE. Thus, the management procedure takes into account a wide range of uncertainties, and has been shown to be robust to the main uncertainties, meeting SG80; however, the ecological role of the stock (as stipulated at SG100) is not considered as far as we can tell, so SG100 is not met. Further evidence once the HCR has been in place for some years may suggest an increase in this score if the high biomass target is achieved.

1.2.2.c Evaluation of HCRs		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

The management procedure (Res. 22/03) provides for a TAC as the main implementation tool. The TAC was set at 80583t in 2024 and 2025 (Res. 23/04), which implies a 15% reduction in catch from the 2021 level. Catches increased to reach 105751t in 2023, requiring a 31% catch reduction by 2024. While IOTC Res. 23/04 provides a catch allocation scheme that covers the major fleets, there are provisions for carryover of underutilised catch limits, and the control is also flexible for those states without a specified catch limit fisheries (see paragraph 7, IOTC Res. 23/04).

Previous experience of IOTC with applying the skipjack catch limit (Res. 15/10) suggests that in practice, IOTC is likely to struggle to enforce such a reduction in catch such that the TAC is respected. In the first 4 years of applying the skipjack catch limit (2018-2021), skipjack catch overshot the limit in the range 116-130%. In the case of the yellowfin tuna rebuilding plan (IOTC Res. 21-01), although catch reductions have been specified for CPCs based on their catch levels, overall catches have continued to increase and have exceeded MSY in recent years.

Furthermore, bigeye fishing mortality is already above the limit level ($F>1.3\ F_{MSY}$). Therefore, for the moment we lack evidence that the TAC can be effective in controlling exploitation and so SG60 is not met.

As a precautionary measure in order to help curb harvest on tropical tunas, Resolution 23/03 has proposed that all CPCs close their tuna fisheries for 31 consecutive days each year (or implement voluntary catch reduction in addition to the catch reduction requirements of the relevant active

resolution), but excludes artisanal vessels (<12m length) operating in their own EEZs. This should help with reductions in mixed fisheries catches if successfully implemented. Similarly, IOTC Res. 24/02 includes provisions for registering DFADs and for limiting their numbers; if successful, this would help to reduce catches. IOTC Res. 24/06, which bans discards of bigeye, yellowfin and skipjack tuna, and is mandatory for purse seine vessels, would be expected to control overall fishing mortality (see 1.2.1.f).

Only 1 out of 2 SG60 were met.

PI 1.2.2 : Fail

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P.1.2.3 Information / monitoring

1.2.3.a Range of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

Bigeye data in the Indian Ocean contain relevant information on the spatial distribution of catches, size frequencies, fleets, tagging data and alternative growth and natural mortality models. Environmental factors, such as ENSO cycle, are monitored and some environmental data are available as covariates in CPUE standardization. Fleet composition is increasingly being reported more accurately. These data have been sufficient to conduct a 4-area ocean-wide stock assessment, and to evaluate the harvest strategy of maintaining stocks at or above the biomass that would produce MSY, meeting SG80.

Despite having tagging data, there are significant information gaps. Catch data are missing for some artisanal and industrial fleets (e.g., small yellowfin and bigeye may have been combined into a single group), although more sophisticated ways are being developed to correct data dealing with this. Size data are not complete for all fleets, but this relates primarily to historical data (before 1980) and the situation has improved, but is still not fully resolved. There is considerable environmental information, but this is not directly used. Therefore, the range of information is not comprehensive, so SG100 cannot be fully met.

1.2.3.b Monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Stock abundance and UoA removals are monitored and **at least 1 indicator** is available and monitored with sufficient frequency to support the harvest strategy.	Stock abundance and UoA removals are **regularly monitored at a level of accuracy and coverage consistent with the harvest strategy**, and **1 or more indicators** are available and monitored with sufficient frequency to support the harvest strategy.	**All information** required by the harvest strategy is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent **uncertainties** in the information (data) and the robustness of assessment and management in dealing with this uncertainty.

Monitoring indices from several fleets' standardized CPUE and from tagging data are adequate for the harvest strategy. The catch history and CPUE series have been updated to 2021 for the most recent stock assessment in 2022, and evidence suggests that data are improving. Indicators of stock abundance mainly consist of standardised catch-per-unit-effort indices, but tagging data exist as well, which are informative. 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.

The 2022 stock assessment used data from 1975-2021 with revised CPUE indices, updated catch and length composition data, split into three areas. Tagging data exist from 2005-2009 (mainly, with lower numbers recovered to 2015). The Working Party on Tropical Tunas noted on-going significant problems with the available data, mainly in terms of catch and CPUE indices, although the situation appears to be better than in the yellowfin assessment, in terms of the uncertainty it causes. Overall, data are sufficient for stock assessment and for an appropriate harvest control rule, meeting SG80. However, the data do not allow for a high degree of certainty and not all sources of uncertainty are well understood, so SG100 is not met.

1.2.3.c Comprehensiveness of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	There is good information on all other fishery removals from the stock.	

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, superseded by Res. 24/06), which with an observer programme should result in more reliable statistics from the main purse seine fleets. Also relevant to the purse seine vessels, IOTC Res. 24/02, intended to optimise DFAD management, has established a DFAD monitoring system to improve scientific data collection, including detailed catch information for this major fishery component. Overall, data are sufficient to meet SG80. While some problems exist,

they are being addressed and do not increase the risk for the assessment and management of the stocks.

All SG60 and SG80 were met, and 0 out of 2 SG100 were met.

PI 1.2.3 : 80

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P.1.2.4 Assessment of stock status

1.2.4.a Appropriateness of assessment to stock under consideration		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment is appropriate for the stock and for the harvest strategy.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.

The main assessment model used for Indian Ocean BET is Stock Synthesis v3 (SS3), most recently used in 2022. Multiple fisheries, gears, and selectivity models have been examined and alternative assessment models have been explored (SCAS in 2022), and the most appropriate model configurations have been adopted for the scientific advice. This meets SG80.

There are remaining difficulties with key productivity parameters and conflict between data sources which could change the perception of stock status to some extent. The software allows the model to capture the main features of the stock and fishery, and use all the available data. The available biological information is unable to inform on key life history parameters ("steepness"). Nevertheless, the assessment models integrate all the available data relevant to the biology and fisheries. Thus, SG100 is met.

1.2.4.b Assessment approach		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.	

All tuna stock assessments have been used to estimate the MSY and other reference points, and these have been used to determine stock status. This meets SG80.

1.2.4.c Uncertainty in the assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The assessment **identifies major sources** of uncertainty.	The assessment **takes uncertainty into account**.	The assessment evaluates stock status relative to reference points in a **probabilistic** way.

All IOTC stock assessments attempt a probabilistic approach which is subsequently used, where there is sufficient information, to give management advice in the form of risk (projection tables and Kobe plots). Therefore, there is an argument that all assessments, where this is achieved, meet SG100. However, we have applied judgement whether the probabilities are really being estimated and whether probabilities are reported in a form suitable for decision making, such as in risk tables.

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 combined across the model grid and presented in 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). An MP for bigeye tuna was adopted in 2022, and requires a 60% probability for ensuring stock rebuilding to the agreed target reference point (B_{MSY}) by the end of the rebuilding timeframe (2034-2038) and a 'high probability' for avoidance of the biomass limit reference point (50% B_{MSY}) (IOTC Res. 22-03). Therefore, uncertainty is carried through from the assessment to management advice, meeting SG80 and SG100.

1.2.4.d Evaluation of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.

The main assessment based on Stock Synthesis v3 (SS3) has been tested and the range of plausible models has been evaluated, showing that the assessment is robust. Alternative models (ASPM and JABBA in 2019 and SCAS in 2022) have also been tried. The range of SS3 runs was thought to capture the uncertainty in the assessment, both in 2019 and 2022. Furthermore, the MSE process, which has now been completed for bigeye, used its operating model to evaluate the robustness of the harvest strategy to a range of uncertainties in the stock assessment, including mis-specification of input data (e.g. unreported catch, CPUE standardisation), assumptions or parameterisations such as steepness, catchability and selectivity and external shocks such as effort creep and recruitment failure. SG100 is met.

1.2.4.e Peer review of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment of stock status is subject to peer review.	The assessment has been **internally and externally peer** reviewed.

The stock assessments are reviewed through the Working Party system of the IOTC's Scientific Committee. The Second IOTC Performance Review recommended that external peer review of stock assessments be incorporated as standard best practice. This would be especially important if the assessments are not just updates.

External experts are regularly invited to participate in the Working Party meetings. However, the structure of the WP meeting has limited the degree of both external and internal review. Levels of review are clearly adequate to meet SG80. Short publicly available technical reports based on external reviewers' observations have been made available for previous bigeye, skipjack and yellowfin stock assessments, although this may not take place for every stock assessment which are often just updates. Additionally in 2023, an independent panel of four experts reviewed the 2021 assessment of yellowfin tuna, and the 2024 assessment has taken account of the recommendations of this review. As the current external reviews are publicly available, the fishery meets SG100.

All SG60, SG80 and SG100 were met.

PI 1.2.4 : 100

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Indian Ocean Yellowfin

1.1 Outcome

P.1.1.1 Stock Status

1.1.1.a Stock status relative to recruitment impairment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
It is **likely** that the stock is above the point of recruitment impairment (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.

The stock assessment in 2024 used a similar model to the 2021 assessment, which was an age structured model (Stock Synthesis 3). Stock status is based on the model formulation, using a new Joint longline abundance index, a new growth model, and revised biological data on mortality and maturity. The MSY_{recent} and B_{MSY_recent} benchmarks were estimated based on the model using the last 20 years of data (i.e. recent = 2003-2022) as the input data (catch and size data) were considered most reliable for this period. Based on this model, the stock was estimated not to be overfished and not subjected to overfishing in 2023 where: B_{2023} = 132%B_{MSY_recent} (80%CI 100%-159%); F_{2023} = 75%F_{MSY} (80%CI 58%-101%) and B_{2023} = 44%B_0 (80%CI 40%-50%) (IOTC-SC27-YFT-SS 2024).

The most recent assessment indicates a completely different status compared to the previous stock assessment in 2021. Although stock status appears to have improved, there was higher uncertainty in the B_{2023} / B_{MSY_recent} ratio, which had a wider confidence interval (by 12%). Using the results to deduce that B_{MSY} is about 35% B_0, the default PRI is 20%B_0=56%B_{MSY} (CR3.1 GSA2.2.3). Considering that the lower 80% confidence limit for B_{2023} indicates that the stock is at 100% B_{MSY}, it is highly likely to be above the PRI, meeting SG80. Some important uncertainties underlie the assessment results, including: accuracy of reported catches; development of the new catch rate index in 2024; and, distinct, unresolved differences in the scale and trends observed for the 2021 and 2024 catch rate series. It is therefore premature to state that the stock is above the PRI with a high degree of certainty, and so SG100 is not met.

1.1.1.b Stock status in relation to achievement of maximum sustainable yield (MSY)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

The accepted 2024 stock assessment indicated a markedly higher stock biomass (B_{2023} = 132%B_{MSY_recent}, 80%CI 100%-159%) compared to the 2021 assessment (B_{2020} = 87%B_{MSY}, 80%CI 63%-110%) and the 2018 assessment (B_{2017}=83%B_{MSY}, 80%CI 74%-97%). Therefore, the current stock status has been re-evaluated, and at this point as above the MSY reference point which meets SG80.

Given that spawning stock biomass has remained below the MSY level according to the previous two assessments (2018, 2021), and only estimated to be above the MSY level by the 2024 assessment that highlights several uncertainties requiring further investigation (e.g. CPUE index, recruitment estimation), the evidence is insufficiently strong to state that the stock is at or fluctuating around the MSY level with a high degree of certainty (CR v3.1 GSA 2.2.2). Furthermore relatively large catches have continued over the last few years, implying a downward trend in abundance. Catches in 2021-2022 were estimated as 421791t and 437315t respectively, which is above the MSY estimated for the recent time period (2003-2022). Therefore, SG100 is not met.

All SG60 and SG80 were met, and 0 out of 2 SG100 were met.

PI 1.1.1 : 80

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1.2 Harvest Strategy (Management)

P.1.2.1 Harvest Strategy

1.2.1.a Harvest strategy design		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **expected** to achieve stock management objectives reflected in PI 1.1.1/PI 1.1.1A 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/PI 1.1.1A 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/PI 1.1.1A SG80.

IOTC's objectives include the adoption, on the basis of scientific evidence, conservation and management measures to ensure the conservation of the stocks and to promote the objective of their optimum utilisation throughout the Indian Ocean. A "Compendium of Active Conservation and Management Measures for the Indian Ocean Tuna Commission" is maintained which sets out the

resolutions currently active. Therefore, the harvest strategy objective is to maintain stock levels at or above the biomass which would produce MSY. This was established as an interim target reference point under Res. 15/10.

IOTC has become concerned by the worsening division shown in recent years among CPCs regarding key issues and that this pattern is increasingly threatening the success of the Commission's work. The decision-making process is primarily dealt with in Principle 3, but the problems with reaching consensus are beginning to affect the harvest strategy particularly of skipjack and yellowfin, and may proceed to undermine these strategies if co-operation cannot be improved.

Scientific advice has informed a harvest strategy relative to MSY-based reference points and is responsive to that state of the stock and to limit and target reference points commonly used for yellowfin and other tropical tunas (Res. 21/01). Other measures complement the strategy. This included two closed areas: IOTC Resolutions 10/01 and 12/13 closed area 0°-10° N. and 40°-60° E., during February to longline vessels, and during November to purse seine vessels, but which were removed under IOTC Resolution 14/02; and, a voluntary minimum 31-day closure across national fleets excluding artisanal vessels < 12 m LOA fishing within their EEZs (Res. 23/03). IOTC Res. 24/06 and similar preceding resolutions (IOTC Res. 13-11 through to IOTC Res. 19/05), aimed at banning discards of the tropical tunas, would help to control fishing capacity and hence overall fishing mortality. Other recent positive developments are Res. 23/01 and Res. 24/02, aimed at improving controls for effective management of both anchored fish aggregating devices (AFADs) and drifting fish aggregating devices (DFADs) respectively, the latter associated with increased mortality of juvenile yellowfin and bigeye tunas, as well as other negative ecological and environmental impacts.

Much of the strategy is untested and it is unclear whether the harvest strategy will be fully effective, particularly as a number of provisions, like catch allocation arrangements, are still in development.

Catches have exceeded the estimated MSY since 2012. The scientific committee suggested in 2016 that the stock could recover to B_{MSY} within 8 years (2024) with a 50% probability if catches were set at 80% of 2014 levels. Resolutions 16/01, 17/01, 18/01, 19/01 and 21/01 established interim plans for rebuilding the Indian Ocean yellowfin tuna stock in the IOTC area of competence, coming into force in years 2017-2022 respectively. The catch limits, if they had been successfully applied, would still have been higher than those recommended by the Scientific Committee to rebuild the stock, but could have plausibly recovered the stock within 10-12 years, which would have fulfilled the management objectives to attain B_{MSY}. It is noticeable however, that the current strategy, which is aimed at stock rebuilding, did not succeed in reducing catches to the required level; notably, catches from gillnet and coastal fisheries were exempt from catch limits and their catches increased as a result (see also 1.2.2c).

Because this is expected to achieve MSY based management objectives perhaps in the longer term and actions have been partially successful, SG60 is met. However, it is not clear yet that elements of the harvest strategy are working together towards achieving management targets. For example, fleets exempted from the rebuilding requirements seem to be increasing their catches, which is undermining the strategy. The decisions represented by the resolutions did not quite align with Scientific Committee advice, the rebuilding timeframe was not clearly defined, and overall catch reductions are not being achieved in a timely manner. In addition, several countries have not agreed to abide by the latest resolution (21/01) that aims to rebuild the stock, further undermining initiatives to reduce catches. It is also worth noting that management strategy evaluation procedures are being developed which could lead to a more robust strategy, but this does not yet meet SG80.

1.2.1.b Harvest strategy evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **likely** to work based on prior experience or plausible argument.	The harvest strategy has been **tested** and is expected to meet the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80 or there is evidence that the harvest strategy is achieving its objectives reflected in PI 1.1.1/ PI 1.1.1A SG80.	The performance of the harvest strategy has been **evaluated** and evidence exists to show that it is achieving the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80, including being clearly able to maintain stocks at target levels.

Res. 21/01 has the intention of maintaining catches below 403,000t, and to reduce fishing mortality below 2017 levels. If this measure is enforced, there is a <30% probability and a 90% probability of stock recovery by 2030 (2021 assessment) and by 2033 (2024 assessment) respectively. Several resolutions have potential to contribute to control and reduction of overall fishing mortality (see 1.2.1a).

Some reduction in catch is highly likely, and, based on prior experience, it should be possible to reduce fishing mortality through the provisions to below F_{MSY}. This meets SG60. What actual reduction will be achieved in practice remains in doubt, and whether this will be sufficient (or more than sufficient) is uncertain. A full stock assessment took place in 2021 and this did not provide evidence that the rebuilding plan was working yet. While the 2024 assessment indicated that that spawning biomass was above the MSY level and overfishing was no longer occurring, the Scientific Committee highlighted the need for inter-sessional work to resolve CPUE index uncertainty. Res. 21/01 remains in place, suggesting the need for continued stock rebuilding efforts at the levels agreed in 2021. The evidence is therefore insufficiently strong at this time to state that the harvest strategy is achieving its objectives, SG80 is not met.

1.2.1.c Harvest strategy monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Monitoring is in place that is expected to determine whether the harvest strategy is working.		

Monitoring is adequate to determine whether the harvest strategy is working. Indicators are regularly estimated and reported by the relevant Working Party, including catches and stock status indicators. In addition, there is a regular external RFMO review which looks at issues relevant to the harvest strategy. Therefore, SG60 is met.

1.2.1.d Harvest strategy review		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The harvest strategy is periodically reviewed and improved as necessary.

There is no evidence of any formal review of the harvest strategy. The harvest strategy is still under development, with plans to introduce more precise control over exploitation, and to improve

monitoring, compliance, scientific advice and decision making. Performance reviews have been conducted on the RFMO, but these have focused on the wider issues (compliance, funding, CPC participation) and past performance rather than specifically on developing a harvest strategy for the future. Because this falls short of the detail review of options for a species-specific harvest strategy that this scoring issue requires, SG100 is not met. Currently IOTC is developing a comprehensive management strategy evaluation for its tuna fisheries. In carrying out this task, it might be argued that the overarching strategy is also being reviewed, so SG100 could be met towards the end of this process.

1.2.1.f Review of alternative measures		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There has been a review of **alternative measures** to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **review** every 5 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock and they are implemented as appropriate.	There is a **review** that happens every 2 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock, and they are implemented, as appropriate.

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. Under v3.1 of the MSC Standard, this must include measures regarding unwanted catch of the target species by ghost gear.

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.

A 2009 review and survey of ghost gear fishing of target species indicated a relatively low impact for longline and purse seine gear, although ghost fishing information on these gears was limited. It is reasonable, therefore, to assume that this statement remains applicable and that the main issue would arise from lost FADs associated with purse seine fishing. This review also considered preventative measures.

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). Quantification of discards generally depends upon the presence of at-sea observers, and observer coverage has generally been increasing. Discarding of target tunas has been considered low risk to the fisheries compared to other concerns.

Incorporating estimates of discards in catch estimates and the stock assessment amounts to a review of discards generally, but the scoring guideposts require a review of “measures” to minimise discarding of the target stock rather than a review of discarding itself. Whether discards are significant enough to require a review to work out how to reduce them would need to be determined on a case-by-case basis. The nature and frequency of reviews for the effects of ghost fishing is much lower than for discards (see MSC Standard Version 3.1, SA2.4.5.1 and SA3.7.2.3). Nevertheless, while ghost fishing (e.g., lost FADs) may be significant risk to bycatch and ETP species, it is unlikely that they cause any significant mortality to the target tuna species as they either do no capture tuna (FADs) or are designed to require active fishing (purse seine nets, longline). Exceptions for some fisheries, like gillnets, might still apply, and national reviews might be required for these gears, particularly for ghost fishing.

For the purposes of scoring this issue here, estimation of discarding and evidence of response is used to indicate a review (i.e., considering levels of discard and by extension its reduction where possible).

In the case of tropical tuna fisheries using FADs, a joint meeting of tRFMOs in 2019 reviewed the science and advice for mitigating FAD impacts, including reducing the mortality of the juvenile tunas. This meeting considered research and technological findings that could, help, inter alia, to inform alternative management measures to reduce juvenile bigeye and yellowfin tuna mortality: FAD monitoring and tracking, to minimise the potential for lost or abandoned FADs to be fished by other vessels; the use of acoustic discrimination techniques for juvenile tuna species identification. The meeting also identified the need to investigate the effects of depth, behaviour, and selectivity of purse seine nets, which could inform alternative measures for reducing unwanted juvenile bigeye tuna mortality. Consideration of the impact of FADs on juvenile tunas and recommendations about specific mitigation measures to reduce those impacts are expected to be addressed in a follow-up meeting, which has not yet taken place. It should be noted that the capture of juvenile bigeye and yellowfin are not unwanted in the sense that they would be discarded, only their capture may constrain the skipjack fishery as well as cause growth overfishing and impact the spawning stock and other gears, such as longline. Therefore, this effectively is an attempt to change the joint fishery selectivity, not reduce unwanted catch.

There is no evidence of a formal review of measures to prevent discarding at the RFMO level, and to minimise all other UoA-related mortality of unwanted catch of the target stock. If such a review is required, it would have to be done at the national level.

The main concern with discards of tuna appears to apply to the purse seine fleet. Discarding is clearly subject to review, and resolutions are proposed and discussed at meetings.

A ban on discards of bigeye, yellowfin and skipjack tunas, except for fish unfit for human consumption, has been in place for several years (IOTC Res. 13/11 with updates through to IOTC Res. 24/06), which has been mandatory for purse seine vessels and with the most recent IOTC Res. 24/06 including a provision encouraging vessels using other gear types to retain these tuna catches. The intention of this measure appears to consider the need to fulfil IOTC objectives regarding conservation and management of bigeye tuna, skipjack tuna, and yellowfin tuna, alongside consideration of the international directives concerning minimisation of discards, as well as socio-economic consequences of fish wastage, and the need to promote sustainable fishing practices. It also highlights the importance of purse seine vessel discards of both target and non-target species, suggesting that some level of review of at least active purse seine gear operations has taken place.

While the impact on ghost fishing may be low for purse seine and other gears, IOTC Res. 23/01 and 24/02 respond to international directives on the need to minimise the negative impacts of AFADs and DFADs respectively, including on juveniles, and of abandoned, lost or discarded fishing gear (ALDFG) and plastic residues through measures for effective marking, identification, and for recovery of such gear in the case of DFADs.

Both IOTC Res. 24/06 and IOTC Res. 24/02 are designed to yield more information about UoA-related mortality of unwanted target catch and both have provisions for technical review of the information gathered, including performance of the measures and consideration of other alternative measures that could be applied in the future. In the case of Res. 24/06, it is not clear though if the review includes target tunas, but it has potential to do so.

This shows at the very least that discarding of tuna is discussed and reviewed regularly and that controls are being implemented, meeting SG80. It is not clear this review is biannual, so SG100 is not met.

All SG60 were met, and 1 out of 3 SG80 were met.

PI 1.2.1 : 65

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P.1.2.2 Harvest control rules and tools

1.2.2.a HCRs design and application		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
HCRs are **expected to reduce the exploitation rate as the PRI is approached** and are either **generally understood** and **in place**, or **available**.	**Well-defined** HCRs **are in place** that **ensure** the exploitation rate is reduced as the PRI is approached, and are expected to keep the stock **fluctuating around** a target level consistent with (or above) MSY, or for key LTL species at levels 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**.

There is no well-defined harvest control rule and therefore there is no specific plan of control if the stock size falls below the maximum sustainable yield level. There is evidence of intention to reduce harvest should depletion occur and the scientific advice is prepared to make recommendations to that effect if it were to occur. Controls, including indirect effects, limit fishing effort and catches through various conservation measures (see the Compendium of Active CMM).

There is an interim decision framework with reference points (Res. 15/10) for all tunas and swordfish, which is being applied in management advice. This includes the intention to develop harvest control rules (HCRs) using simulations and guidelines in the UNFSA and the IOTC Agreement. The stated objectives, based on the status phase plot, are in place, interim MSY reference points have been defined, and IOTC Res. 15/10 includes a programme of work for development and assessment of HCRs. In the meantime, there is a generally understood HCR where exploitation rates are to be reduced in some way where stocks fall below target levels. This is demonstrated by the rebuilding plan for yellowfin (Res. 16/01, 17/01, 18/01, 19/01 and 21/01). This meets SG60.

Management strategy evaluations (MSE) are being undertaken as a way to develop a robust strategy and harvest control rules should form part of this. Because the MSE will require decision-making to be simulated, the tested rules will need to be well defined.

Although a response to rebuilding yellowfin demonstrates the intention to reduce exploitation rates to reverse biomass trends, the decisions are specific to the current situation and *ad hoc*. For yellowfin, the advice is to set catch limits, but how these are implemented is up to each CPC. In practice so far, yellowfin fisheries have not managed to reduce catches to the target level set by the scientific committee suggesting significant problems with implementation. Exactly what action would be taken for other stocks has not yet been determined. Therefore, although the intention of the HCR is clear, it is not well-defined and does not meet SG80.

1.2.2.b The robustness of HCRs to uncertainty		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

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. The interim decision framework clearly intends that reference points and HCR under development (Res. 15/10) will be robust and this is identified as one of the criteria for evaluation. Management strategy evaluation and the development of management procedures that include a suitable HCR are underway for albacore (final phase) and yellowfin tuna (initial phase). Once a suitable HCR is developed consistent with Resolution 15/10 and is implemented, SG80 would be likely met.

1.2.2.c Evaluation of HCRs		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

In the case of yellowfin, while the 2021 assessment showed the stock to be in decline, the 2024 assessment indicated that the stock size was above the MSY level. In view of important uncertainties with input data used for the assessments, management advice has been precautionary, especially as catches have continued above the agreed target levels.

Based on resolutions 16-01/17-01/18-01/19-01/21-01 a number of tools for controlling catches were adopted including percent reductions in purse seine, gillnet and other gear catch and reduction in FADs. This has been partially successful. Catches have been broadly reduced in some fleets subject to the controls, albeit the reduction has not yet met the target level over the last 7 years. Fleets exempt from catch limit requirements have increased their catch, and the overall catch has therefore continued to increase through the early years of the rebuilding plan, particularly 2018-2019, and although slightly lower catches were taken in 2020-2022, the level has remained significantly higher than the target. Resolution 19/01 and the current active Res. 21/01 include provisions for managing catch limit overages through downward adjustment in subsequent years. There is some evidence that, if catch limits are achieved, they will work in rebuilding based on projections and CPC reporting. This represents some evidence that tools used are appropriate and effective in limiting exploitation, meeting SG60. The argument here is that extending the tools to all fleets, preventing any catch increases, should be effective in limiting exploitation to the desired levels. Only one country has objected to 19/01 (to which 18/01 applies), but this increased to a further 5 countries objecting to Res. 21/01 (to which 19/01 still applies), suggesting further deterioration in the co-operation required to implement effective catch limits. There continue to be

issues with reporting of catches for several fisheries, which also undermines confidence in the catch limit measure.

Of recent concern has been EU-Spain purse seiners yellowfin catch reports in 2018, which make up a significant proportion of the small yellowfin catch. The discrepancy was the result of a new data processing method introduced in 2018, which resulted in a 17% reduction in the reported catch of yellowfin tuna in contrast to skipjack and bigeye which increased by 58% and 112% respectively. This has not yet been resolved in 2023, although some improvement was reported in 2024.

As noted in previous evaluations, at some point, if CPCs are unwilling or unable to apply the catch limits being set out in resolutions, SG60 will not be met. Although the SSB is still well-above any candidate PRIs and the fisheries have a little time to improve the situation, the trend in SSB has been downward until the very last year in the case of the 2024 assessment. Catches increased during the first three years (2017-2019) of the rebuilding plan, averaging 452010t in that period before decreasing in 2020-2022 to around 430528t on average. The 2021 estimate of MSY was 349000t (80%CI 286000t-412000t). In comparison, the 2024 estimated MSY to be 421000t (80%CI, 416000t-430000t) assuming recent 20-year recruitment levels as data for that period were considered more reliable. Current catches are just above the upper MSY limit estimated by the 2024 assessment and certainly higher than the 2021 MSY interval.

Given that no catch reductions have been achieved since the management system set out its intent to reduce catches from 2017 (Resolution 16/01), the claim that tools are appropriate and effective now has little credibility and SG60 is not met. A clear catch reduction in line with scientific advice is required that exploitation can be limited across all fleets before the SG80 can be met.

As a precautionary measure in order to help curb harvest on tropical tunas, Resolution 23/03 has proposed that all CPCs close their tuna fisheries for 31 consecutive days each year (or implement voluntary catch reduction in addition to the catch reduction requirements of the relevant active resolution), but excludes artisanal vessels (<12m length) operating in their own EEZs. This should help with reductions in mixed fisheries catches if successfully implemented. Similarly, IOTC Res. 24/02 includes provisions for registering DFADs and for limiting their numbers; if successful, this would help to reduce catches. IOTC Res. 24/06, which bans discards of bigeye, yellowfin and skipjack tuna, and is mandatory for purse seine vessels, would be expected to control overall fishing mortality (see 1.2.1.f).

Only 1 out of 2 SG60 were met.

PI 1.2.2 : Fail

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P.1.2.3 Information / monitoring

1.2.3.a Range of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

Yellowfin data in the Indian Ocean are reasonably informative containing relevant information on the spatial distribution of catches, size frequencies, from numerous fleets, tagging data and alternative growth and mortality models. These data have been sufficient to conduct assessments and to evaluate the harvest strategy to maintain stocks at or above the biomass that would produce MSY. Some environmental data are used as covariates in CPUE standardization and to help explain recruitment dynamics. An Indian Ocean-wide stock unit is assumed for fishery management purposes, although certain studies indicate that the stock structure may be more complex. For example, recent genomic analysis on South African catches (Mullins et al. 2019) found that yellowfin caught in the Atlantic waters were likely to belong to the Indian Ocean management unit, highlighting errors in stock structure are likely to still exist. Overall, data are sufficient to meet SG80. There remain significant gaps in the data, however, related to catches, stock structure and fleet operations, such that the range of information is not comprehensive, so SG100 cannot be fully met.

1.2.3.b Monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Stock abundance and UoA removals are monitored and **at least 1 indicator** is available and monitored with sufficient frequency to support the harvest strategy.	Stock abundance and UoA removals are **regularly monitored at a level of accuracy and coverage consistent with the harvest strategy**, and **1 or more indicators** are available and monitored with sufficient frequency to support the harvest strategy.	**All information** required by the harvest strategy is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent **uncertainties** in the information (data) and the robustness of assessment and management in dealing with this uncertainty.

Abundance indices from several fleets' standardized CPUE and from tagging data are adequate for the harvest strategy. 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. External reviewers have recommended extended use of tagging studies, but these are expensive and difficult to implement. Removals are probably adequately recorded for assessment purposes, although there are concerns on catches reported for some fleets. These are probably within

acceptable uncertainty for the assessment. Data are sufficient to meet the requirements of SG80. However, the data do not currently allow the harvest strategy to be applied with great confidence, preventing SG100 being met.

1.2.3.c Comprehensiveness of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	There is good information on all other fishery removals from the stock.	

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, superseded by Res. 24/06), which with an observer programme should result in more reliable statistics from the main purse seine fleets. Also relevant to the purse seine vessels, IOTC Res. 24/02, intended to optimise DFAD management, has established a DFAD monitoring system to improve scientific data collection, including detailed catch information for this major fishery component. Overall, data are sufficient to meet SG80. While some problems exist, they are being addressed and do not increase the risk for the assessment and management of the stocks.

Notwithstanding the above, for the 2021 assessment, special concern was raised with respect to EU-Spain purse seiners yellowfin catch reports between 2017 and 2018. This is of particular concern because they make up a significant proportion of the small yellowfin catch. This was the result of a new methodology for processing purse seine fisheries data for 2018, which resulted in a 17% reduction in the reported catch of yellowfin tuna when the catches of skipjack and bigeye tunas increased by 58% and 112%, respectively. Although this issue has been highlighted it was not resolved for the 2021 stock assessment. In 2024, some improvements were reported for the EU-Spain 2018 data.

All SG60 and SG80 were met, and 0 out of 2 SG100 were met.

PI 1.2.3 : 80

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P.1.2.4 Assessment of stock status

1.2.4.a Appropriateness of assessment to stock under consideration		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment is appropriate for the stock and for the harvest strategy.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.

The primary assessment tool for stock status is based on the age structured statistical model (SS3) with the latest assessment being completed in 2024. The 2024 stock assessment has included a number of revisions compared to the previous assessment, which took into account recommendations made in 2023 by an external reviewer of the 2021 assessment. Additionally, the 2024 assessment included revisions to the growth model, natural mortality, and maturity. Model updates were done in a stepwise fashion for improved understanding of the impact of each new

elemental change. The new model outcomes were most impacted by: revisions and updates to CPUE, length composition, new growth and purse seine selectivity, and mortality. MSY_{recent} and B_{MSY_recent} benchmarks were estimated based on the model using the last 20 years of data, with the reasoning that certain data were most reliable for this period (see P1.1.1a). While biomass dynamics and other age structured models have also been explored, the SS3 result is the one being used for stock status advice. The SS3 model is appropriate for the stock and harvest strategy, meeting SG80. However, in view of the revisions undertaken since the last assessment, requests for review of some input information, and the fact that these recent revisions have yielded a contrasting result, it is premature to confirm that the assessment approach is capturing the major features of the species and UoA, so SG100 is not met.

1.2.4.b Assessment approach		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.	

All tuna stock assessments have been used to estimate the MSY and other reference points, and these have been used to determine stock status. This meets SG80.

1.2.4.c Uncertainty in the assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The assessment **identifies major sources** of uncertainty.	The assessment **takes uncertainty into account**.	The assessment evaluates stock status relative to reference points in a **probabilistic** way.

All IOTC stock assessments attempt a probabilistic approach which is subsequently used, where there is sufficient information, to give management advice in the form of risk (projection tables and Kobe plots). Therefore, there is an argument that all assessments, where this is achieved, meet SG100. However, we have applied judgement whether the probabilities are really being estimated and whether probabilities are reported in a form suitable for decision making, such as in risk tables.

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 combined across the model grid and presented in 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, meeting SG80 and SG100.

1.2.4.d Evaluation of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.

Application of alternative assessment models (BBPM, SCAA, SS3) to Indian Ocean yellowfin has been relatively recent, from 2015. A variety of hypotheses have been considered, including growth, linkages between areas and natural mortality. Available evidence suggests that the assessment is reasonably robust. For the 2024 assessment, advice is based upon a grid of 12 alternative plausible models in 2024, to account for possible alternative states of stock and fishery dynamics. It is difficult to determine at what point such explorations are sufficient to meet the SG100 as there will always be more that could be done. The assessment noted important uncertainties in catch data, size data, CPUE standardisation, model configuration (e.g. spatial structure). Problems diagnosed in the tagging data for example have not yet been resolved. Given these continuing uncertainties in the assessment, further evidence, perhaps using the MSE or with new information, would go some way to meeting the SG100 requirements.

1.2.4.e Peer review of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment of stock status is subject to peer review.	The assessment has been **internally and externally peer** reviewed.

The stock assessments are reviewed through the Working Party system of the IOTC's Scientific Committee. The Second IOTC Performance Review recommended that external peer review of stock assessments be incorporated as standard best practice. This would be especially important if the assessments are not just updates.

External experts are regularly invited to participate in the Working Party meetings. However, the structure of the WP meeting has limited the degree of both external and internal review. Levels of review are clearly adequate to meet SG80. Short publicly available technical reports based on external reviewers' observations have been made available for previous bigeye, skipjack and yellowfin stock assessments, although this may not take place for every stock assessment which are often just updates. Additionally in 2023, an independent panel of four experts reviewed the 2021 assessment of yellowfin tuna, and the 2024 assessment has taken account of the recommendations of this review. As the current external reviews are publicly available, the fishery meets SG100.

All SG60 and SG80 were met, and 2 out of 4 SG100 were met.

PI 1.2.4 : 90

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Indian Ocean Skipjack

1.1 Outcome

P.1.1.1 Stock Status

1.1.1.a Stock status relative to recruitment impairment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
It is **likely** that the stock is above the point of recruitment impairment (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.

The latest stock assessment was conducted in 2023 with slightly more optimistic results to the previous (2020) assessment, indicating the stock was not overfished and overfishing was not occurring (70% probability of being in the green quadrant of Kobe plot), despite high recent catches. Spawning stock biomass (B) was estimated to be around B_{2022}=53%B_0 (80%CI 42%–68%), which is highly likely above the designated target (40%B_0).

Following the guidance in CR3.1 GSA2.2.3, since B_{MSY} is analytically determined and below 27%B_0, the point of recruitment impairment (PRI) is assumed here to be 75%B_{MSY} (i.e., 17%B_0). Given that the B_{2022}= 230%B_{MSY} (80%CI 157%-340%), and assuming that the estimate is approximately normally distributed, the lower bound of the 95% confidence interval is 138%B_{MSY}, which is still well above the PRI (75%B_{MSY}) (Fu 2023, Figure 25). Even if the highly precautionary 20%B_0 PRI was used (85%B_{MSY}), the lower 5%ile stock status would still be above the PRI. IOTC uses the more precautionary 20%B_0 as a limit and 40%B_0 as a target reference point when reporting stock status.

This suggests that there is a high degree of certainty that the stock is above the point of recruitment impairment, meeting the SG100.

1.1.1.b Stock status in relation to achievement of maximum sustainable yield (MSY)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

After the new stock assessment in 2023, the stock status was officially determined as not overfished and not subject to overfishing, 40%B_0 being the value adopted by IOTC as the biomass target reference point used to determine stock status. Given the status of the fishery, the scientific committee indicated that the stock should fluctuate around the target level if the HCR is implemented (Resolution 21/03). The adopted target is above the estimated MSY level and the current biomass relative to target biomass levels was estimated as B_{2022} = 133%$B_{40\%B0}$ (80%CI 104%-171%).

Comparing current biomass level to the analytical MSY estimate (MSY = 584774t, 80%CI, 512228t–686071t), B_{2022}=230%B_{MSY} (80%CI: 157%-340%) and F_{2019} = 49%F_{MSY} (80%CI 32%-75%). This would indicate that there is a high degree of certainty that the stock has been above the MSY reference point in recent years and the exploitation level is below what would drive the stock to this level. These results do not differ substantially from the 2017 (stock status indicated 47% probability of

being in the green quadrant) or 2020 assessments (60% probability of being in the green quadrant) despite recent catches exceeding the catch limits.

The stock is above the MSY reference point with a high degree of certainty (>95%ile), so SG100 is met.

It is important to note that this may not hold between stock assessments if catch limits are routinely exceeded, with recent high stock productivity being explained by environmental conditions that are believed to promote increased stock recruitment, but which are not expected to last beyond 2024. The catch level during 2021-2023 averaged 665917t, which was 130% of the HCR limit for the same period. So far it has still not been possible to reduce the total catch to the required levels, which puts the stock at risk of declining below the MSY level.

All SG60, SG80 and SG100 were met.

PI 1.1.1 : 100

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1.2 Harvest Strategy (Management)

P.1.2.1 Harvest Strategy

1.2.1.a Harvest strategy design		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **expected** to achieve stock management objectives reflected in PI 1.1.1/PI 1.1.1A 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/PI 1.1.1A 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/PI 1.1.1A SG80.

IOTC's objectives include the adoption, on the basis of scientific evidence, conservation and management measures to ensure the conservation of the stocks and to promote the objective of their optimum utilisation throughout the Indian Ocean. A "Compendium of Active Conservation and Management Measures for the Indian Ocean Tuna Commission" is maintained which sets out the resolutions currently active. Therefore, the harvest strategy objective is to maintain stock levels at or

above the biomass which would produce MSY. This was established as an interim target reference point under Res. 15/10.

IOTC has become concerned by the worsening division shown in recent years among CPCs regarding key issues and that this pattern is increasingly threatening the success of the Commission's work. The decision-making process is primarily dealt with in Principle 3, but the problems with reaching consensus are beginning to affect the harvest strategy particularly of skipjack and yellowfin, and may proceed to undermine these strategies if co-operation cannot be improved.

The harvest strategy consists of a statistical monitoring system, scientific assessment of the performance of various controls on exploitation and decision making consistent with well-defined objectives and procedures. Scientific advice has been formulated relative to MSY-based reference points and is responsive to the state of the stock. Among many others, current management resolutions being applied consist of managing FADs (IOTC Res. 19/02 superseded by IOTC Res. 24/02, and IOTC Res. 23/01), maintaining a list of authorised vessels (Res. 19/04), banning discarding (Res. 19/05, superseded by IOTC Res. 24/06) and managing transshipment (Res. 22/02). Resolution 15/10 establishes reference points, and although it is directed at the fisheries scientists, clearly sets out management objectives so that advice can be clarified. Further harvest strategy improvements are only in the development stage, such as establishing a quota system (Res. 14/02) or and a proposed 31-day closure across non-artisanal fisheries (Res. 23/03). Alongside direct controls (IOTC Res. 16/02, 21/03) which do not appear to have been fully effective, indirect effects of limiting yellowfin catches (Res. 21/01) may also help limit exploitation on skipjack. A management procedure (MP) was adopted in 2024 (IOTC Res. 24/07), which establishes the risk boundaries for stock status management, and use of the HCR to estimate an annual TAC for every 3-year period. The different elements of the harvest strategy (scientific, management, CPC) appear to be work together sufficiently well to achieve objectives for this stock. This meets SG80.

MP implementation begins from 2025, and is expected to determine the TAC for 2027-2029. It also includes an obligation for the Scientific Committee to monitor for exceptional circumstances on an annual basis, in accordance with already endorsed guidelines for such. The harvest strategy is now more specific in its design, but it is too early to determine responsiveness of the MP. However, current controls on exploitation remain imprecise and do not achieve the desired catches exactly. Hence, the impact of the various provisions is unclear. Therefore, the designed aspect of the strategy to change overall selectivity and to reduce exploitation in accordance with current HCR catch limits cannot be given full credit and SG100 is not met.

1.2.1.b Harvest strategy evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **likely** to work based on prior experience or plausible argument.	The harvest strategy has been **tested** and is expected to meet the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80 or there is evidence that the harvest strategy is achieving its objectives reflected in PI 1.1.1/ PI 1.1.1A SG80.	The performance of the harvest strategy has been **evaluated** and evidence exists to show that it is achieving the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80, including being clearly able to maintain stocks at target levels.

Testing is provided by stock assessment and short-term projections of the expected mortality. The assessment has shown that the skipjack stock is not overfished, indicating that so far, that the harvest strategy has been effective in controlling exploitation on this stock. Based on the stock assessment and HCR processes already in place, and management resolutions that are updated in response to new scientific advice, this provides some evidence that the harvest strategy is considered reasonable and will work as long as resolutions successfully limit exploitation to current

levels. Although catches have exceeded the HCR limits in recent years, the scientific advice indicated that there has been a beneficial stock productivity period that may explain the recent higher catch rates and catches. The HCR limit for 2024-2026 is higher than the preceding period 2021-2023, likely owing to improved stock conditions and higher catch rates at the time of the 2023 assessment. An MP was adopted in 2024, which had been developed from simulation tests (IOTC Res. 24/07). This meets SG80.

There is concern over the control of catches, which has been a problem in all Indian Ocean tuna fisheries, picked up in PI 1.2.2. Until there is more evidence that the components of the MP are practically being applied and can achieve a realistic level of control on the fishery, the fishery cannot be considered fully evaluated and SG100 is not met.

1.2.1.c Harvest strategy monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Monitoring is in place that is expected to determine whether the harvest strategy is working.		

Monitoring is adequate to determine whether the harvest strategy is working. Indicators are regularly estimated and reported by the relevant Working Party, including catches and stock status indicators. In addition, there is a regular external RFMO review which looks at issues relevant to the harvest strategy. Therefore, SG60 is met.

1.2.1.d Harvest strategy review		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The harvest strategy is periodically reviewed and improved as necessary.

The harvest strategy for skipjack has been under development for several years, with an agreed HCR adopted in 2016 (IOTC Res. 16/02, superseded by IOTC Res. 21/23). Management strategy evaluation for skipjack began in 2019, resulting in finalisation and adoption of an MP in 2024 (IOTC Res. 24/07). The harvest strategy has therefore been kept under review, with elements maintained and improved over time and incorporated into a formal MP by 2024. This meets SG100.

Specific provisions for review are incorporated into the MP, and hence the periodic harvest strategy review process is expected to continue. A formal review of the MP is expected before 2032. Noting this, the adopted MP includes provisions for ongoing review of: exceptional circumstances that may warrant changes in management responses; the guidelines on exceptional circumstances to facilitate necessary refinements; and, stock indicators that may indicate the need for an earlier overall formal review of the adopted MP.

1.2.1.f Review of alternative measures		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There has been a review of **alternative measures** to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **review** every 5 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock and they are implemented as appropriate.	There is a **review** that happens every 2 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock, and they are implemented, as appropriate.

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. Under v3.1 of the MSC Standard, this must include measures regarding unwanted catch of the target species by ghost gear.

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.

A 2009 review and survey of ghost gear fishing of target species indicated a relatively low impact for longline and purse seine gear, although ghost fishing information on these gears was limited. It is reasonable, therefore, to assume that this statement remains applicable and that the main issue would arise from lost FADs associated with purse seine fishing. This review also considered preventative measures.

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). Quantification of discards generally depends upon the presence of at-sea observers, and observer coverage has generally been increasing. Discarding of target tunas has been considered low risk to the fisheries compared to other concerns.

Incorporating estimates of discards in catch estimates and the stock assessment amounts to a review of discards generally, but the scoring guideposts require a review of “measures” to minimise discarding of the target stock rather than a review of discarding itself. Whether discards are significant enough to require a review to work out how to reduce them would need to be determined on a case-by-case basis. The nature and frequency of reviews for the effects of ghost fishing is much lower than for discards (see MSC Standard Version 3.1, SA2.4.5.1 and SA3.7.2.3). Nevertheless, while ghost fishing (e.g., lost FADs) may be significant risk to bycatch and ETP species, it is unlikely that they cause any significant mortality to the target tuna species as they either do no capture tuna (FADs) or are designed to require active fishing (purse seine nets, longline). Exceptions for some fisheries, like gillnets, might still apply, and national reviews might be required for these gears, particularly for ghost fishing.

For the purposes of scoring this issue here, estimation of discarding and evidence of response is used to indicate a review (i.e., considering levels of discard and by extension its reduction where possible).

In the case of tropical tuna fisheries using FADs, a joint meeting of tRFMOs in 2019 reviewed the science and advice for mitigating FAD impacts, including reducing the mortality of the juvenile tunas. This meeting considered research and technological findings that could, help, inter alia, to inform alternative management measures to reduce juvenile bigeye and yellowfin tuna mortality: FAD monitoring and tracking, to minimise the potential for lost or abandoned FADs to be fished by other vessels; the use of acoustic discrimination techniques for juvenile tuna species identification. The meeting also identified the need to investigate the effects of depth, behaviour, and selectivity of purse seine nets, which could inform alternative measures for reducing unwanted juvenile bigeye

tuna mortality. Consideration of the impact of FADs on juvenile tunas and recommendations about specific mitigation measures to reduce those impacts are expected to be addressed in a follow-up meeting, which has not yet taken place. It should be noted that the capture of juvenile bigeye and yellowfin are not unwanted in the sense that they would be discarded, only their capture may constrain the skipjack fishery as well as cause growth overfishing and impact the spawning stock and other gears, such as longline. Therefore, this effectively is an attempt to change the joint fishery selectivity, not reduce unwanted catch.

There is no evidence of a formal review of measures to prevent discarding at the RFMO level, and to minimise all other UoA-related mortality of unwanted catch of the target stock. If such a review is required, it would have to be done at the national level.

The main concern with discards of tuna appears to apply to the purse seine fleet. Discarding is clearly subject to review, and resolutions are proposed and discussed at meetings.

A ban on discards of bigeye, yellowfin and skipjack tunas, except for fish unfit for human consumption, has been in place for several years (IOTC Res. 13/11 with updates through to IOTC Res. 24/06), which has been mandatory for purse seine vessels and with the most recent IOTC Res. 24/06 including a provision encouraging vessels using other gear types to retain these tuna catches. The intention of this measure appears to consider the need to fulfil IOTC objectives regarding conservation and management of bigeye tuna, skipjack tuna, and yellowfin tuna, alongside consideration of the international directives concerning minimisation of discards, as well as socio-economic consequences of fish wastage, and the need to promote sustainable fishing practices. It also highlights the importance of purse seine vessel discards of both target and non-target species, suggesting that some level of review of at least active purse seine gear operations has taken place.

While the impact on ghost fishing may be low for purse seine and other gears, IOTC Res. 23/01 and 24/02 respond to international directives on the need to minimise the negative impacts of AFADs and DFADs respectively, including on juveniles, and of abandoned, lost or discarded fishing gear (ALDFG) and plastic residues through measures for effective marking, identification, and for recovery of such gear in the case of DFADs.

Both IOTC Res. 24/06 and IOTC Res. 24/02 are designed to yield more information about UoA-related mortality of unwanted target catch and both have provisions for technical review of the information gathered, including performance of the measures and consideration of other alternative measures that could be applied in the future. In the case of Res. 24/06, it is not clear though if the review includes target tunas, but it has potential to do so.

This shows at the very least that discarding of tuna is discussed and reviewed regularly and that controls are being implemented, meeting SG80. It is not clear this review is biannual, so SG100 is not met.

All SG60 and SG80 were met, and 1 out of 4 SG100 were met.

PI 1.2.1 : 85

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P.1.2.2 Harvest control rules and tools

1.2.2.a HCRs design and application		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
HCRs are **expected to reduce the exploitation rate as the PRI is approached** and are either **generally understood** and **in place**, or **available**.	**Well-defined** HCRs **are in place** that **ensure** the exploitation rate is reduced as the PRI is approached, and are expected to keep the stock **fluctuating around** a target level consistent with (or above) MSY, or for key LTL species at levels 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**.

Resolution 21-03 established a biomass limit reference point of 20% of unfished spawning biomass, a biomass target reference point of 40% of unfished spawning biomass (MSY proxy), and a harvest control rule whereby the exploitation rate is proportionally reduced as biomass declines from $40\%B_0$ to $10\%B_0$. The HCR is now well defined and is clearly intended to maintain the stock at target levels. The annual catch limit was set to 513572t for the period 2021-2023 and 628605t for the period 2024-2026.

Trigger reference points used in the harvest control rule have been set at values consistent with maintaining the stock around the MSY level, which has been shown from simulations and stock assessment projections. The HCR also has the attribute of decreasing the exploitation rate as the stock approaches the PRI. The HCR has been well defined because it can be included in a computer simulation. This clearly meets SG80.

MSE and development of an MP with an updated HCR for skipjack was concluded in 2024. The MSE simulation framework was informed by the 2023 assessment model grid, and included an important test of robustness that examined the impact of TAC overages of 20% and 30%. The target reference point ($40\%B_0$) is conservative as $B_{MSY} < 40\%B_0$ for skipjack tuna, and so the adopted HCR still offers a high probability of maintaining the stock above the B_{MSY} level (IOTC–TCMP08 2024). However, the HCR does not explicitly take into account the stock's ecological role. Hence, SG100 is not fully met.

1.2.2.b The robustness of HCRs to uncertainty		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

Previously, an HCR was established through Resolution 16/02 and implemented (Res. 21/03, superseded by IOTC Res. 24/07)). Simulations were used to develop and test the rule, and determined that the formulation was expected to be effective and precautionary. The simulation included the main uncertainties (future recruitment etc.), and the HCR was shown to be likely robust to these.

MSE and development of a MP with a refined HCR for skipjack was concluded in 2024. The MSE simulation framework tested 12 MP configurations (addressing management, fishery performance and stock criteria scenarios) against the 2023 assessment grid of 36 models. The MP were also tested for robustness to catch overages of 20% and 30%. This is important as the fisheries have struggled to apply the required catch limits under the earlier HCR. As the earlier HCR and new MP were tested, the HCR is likely to be robust to the main uncertainties, SG80 is met.

The MP does not explicitly take into account the stock's ecological role, interactions with other species, or other uncertainties, most notably alternative stock structures, so these remain untested. Also, given that the MP was adopted in 2024, and as catch overages have shown the potential to reduce MP performance, the evidence is currently limited to state that the MP, with its HCR, is robust to uncertainties, so SG100 is not met.

1.2.2.c Evaluation of HCRs		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

Following adoption of an HCR for skipjack tuna by Res. 16/02 and completion of the 2017 assessment, a catch limit of 470,029t, informed by the HCR, was established for 2018-2020 (IOTC Circular 2017-094).The catch in 2016 (459672t) was below the catch limit set for 2018-2020, but both the catch in 2017 (541359t) and catches during 2018-2020 (average=584137t) have exceeded it. Based on the same Res. 16/02 HCR, the catch limit was revised upwards to 513572t for 2021-23 (IOTC Circular 2021-09), but again annual catches consistently exceeded the catch limit in 2021-2023, reaching on average, 30% higher than the limit. The HCR was updated in 2021 (Res. 21/03) and this was used to set a catch limit of 628606t for 2024-2026. The stock status remains high, but appropriate control on fishing mortality still needs to be demonstrated, particularly with the overall catch showing a continuing increase over time.

The HCR defined in IOTC Resolution 16/02 was updated in 2021 (IOTC Res. 21/03), and revised again for incorporation into a formal MP for skipjack tuna, adopted in 2024 (IOTC Res. 24/07). While an overall catch limit is established, country-level allocations are not yet in place, although there is expectation that this or some other catch constraint mechanism will be in place by 2026 (IOTC Res. 24/07).

Besides the use of a TAC measure, other available HCR-supporting tools for controlling exploitation include a voluntary closure measure, a ban on discards, improved FAD management and monitoring. The IOTC has begun to develop allocation mechanisms for both TACs and access agreements. Negotiations on quotas has started among member states. There is some evidence that some IOTC members have controlled their own catches in an effective manner and IOTC is seeking to ensure full catches are recorded (Res. 19/05, superseded by Res. 24/06). On this basis, tools are 'available' to implement the HCR, which should be able to control exploitation rates if required. SG60 is met.

Because clear tested tools, such as fleet specific TACs, are not yet 'in place' for the implementation of the HCR, SG80 cannot met.

Furthermore, unless effective controls are successfully placed on skipjack catches to limit them to the desired levels, SG60 may not be met in future, because an effective tool to limit catches is now required. This may occur even if skipjack stock status is good because the HCR is not able to control the fishing mortality. Also, failure to apply catch limits on yellowfin could affect confidence that such

controls could be effectively applied for skipjack. SG80 would require either improved control over catches demonstrating their effectiveness in implementing catch limits or a management procedure that is shown to be robust to the implementation error. The current MP was tested for catch overage situations (20% and 30%), and showed reduced performance regarding achievement of MP objectives.

As a precautionary measure in order to help curb harvest on tropical tunas, Resolution 23/03 has proposed that all CPCs close their tuna fisheries for 31 consecutive days each year (or implement voluntary catch reduction in addition to the catch reduction requirements of the relevant active resolution), but excludes artisanal vessels (<12m length) operating in their own EEZs. This should help with reductions in mixed fisheries catches if successfully implemented. Similarly, IOTC Res. 24/02 includes provisions for registering DFADs and for limiting their numbers; if successful, this would help to reduce catches. IOTC Res. 24/06, which bans discards of bigeye, yellowfin and skipjack tuna, and is mandatory for purse seine vessels, would be expected to control overall fishing mortality (see 1.2.1.f).

All SG60 were met, and 2 out of 3 SG80 were met.

PI 1.2.2 : 75

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P.1.2.3 Information / monitoring

1.2.3.a Range of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

Skipjack data in the Indian Ocean are reasonably informative containing relevant information on the spatial distribution of catches, size frequencies, from numerous fleets, tagging data and alternative growth and mortality models. These data have been sufficient to conduct an initial assessment and to evaluate whether stocks are maintained at or above the biomass that would produce MSY. Some environmental data are used as covariates in CPUE standardization and to help explain recruitment dynamics. Stock structure data are limited, but are so far consistent with an Indian Ocean-wide stock with sub-areas, although this may change if more tagging is carried out in the western ocean. Overall, the data are sufficient for the harvest strategy at the current level of exploitation, meeting SG80. There remain significant gaps in the data, however, related to catches, stock structure and fleet operations, such that the range of information is not comprehensive, so SG100 cannot be fully met.

1.2.3.b Monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Stock abundance and UoA removals are monitored and **at least 1 indicator** is available and monitored with sufficient frequency to support the harvest strategy.	Stock abundance and UoA removals are **regularly monitored at a level of accuracy and coverage consistent with the harvest strategy**, and **1 or more indicators** are available and monitored with sufficient frequency to support the harvest strategy.	**All information** required by the harvest strategy is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent **uncertainties** in the information (data) and the robustness of assessment and management in dealing with this uncertainty.

Monitoring indices from standardized CPUE and from tagging data are adequate for the harvest strategy and current level of exploitation. Indicators of stock abundance consist of standardised catch-per-unit-effort indices.

The Scientific Committee expressed concerns on the ability of the available CPUE to reflect changes in stock size. There is no longline CPUE, which is usually relied upon. However, the two independent indices in 2023 were coherent, giving rise to some confidence in their tracking of abundance. Overall, data are sufficient for the application of a precautionary harvest control rule which has been implemented through Resolutions 16/02 (superseded by IOTC Res. 21/03) and further refined into a formal MP in 2024 (IOTC Res. 24/07), so SG80 is met.

Significant information is missing (for example, reliable CPUE indices do not extend to the early fisheries, size composition data are sparse for some fleets, and so on). There have been no recent tagging programmes. Data collection is improving through, for example, the introduction of electronic monitoring, so data may build into the future where all information useful to the stock assessment (and hence harvest control rule) is available and its uncertainties are well understood, but this is not the case yet. SG100 is not met.

1.2.3.c Comprehensiveness of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	There is good information on all other fishery removals from the stock.	

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, superseded by Res. 24/06), which with an observer programme should result in more reliable statistics from the main purse seine fleets. Also relevant to the purse seine vessels, IOTC Res. 24/02, intended to optimise DFAD management, has established a DFAD monitoring system to improve scientific data collection, including detailed catch information for this major fishery component. Overall, data are sufficient to meet SG80. While some problems exist,

they are being addressed and do not increase the risk for the assessment and management of the stocks.

All SG60 and SG80 were met, and 0 out of 2 SG100 were met.

PI 1.2.3 : 80

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P.1.2.4 Assessment of stock status

1.2.4.a Appropriateness of assessment to stock under consideration		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment is appropriate for the stock and for the harvest strategy.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.

The primary assessment tool for Indian Ocean skipjack is Stock Synthesis v3 (SS3) which incorporates multiple fisheries, gears, selectivity models and spatial variability last updated in 2020. Since the first assessment in 2011, the assessment has improved and has become more reliable, with fewer unresolved uncertainties. The assessment approach can use all available data, even if not all data are available to be included in the assessment at the current time. Therefore, the assessment is appropriate for the stock and for the current harvest strategy, meeting SG80. In addition, the model includes known biological features (e.g., two-stanza growth model to reflect more rapid growth observed for juveniles, with maturity and natural mortality inputs aligned with understanding for other skipjack stocks in other oceans) and uses all available data, so SG100 is met.

1.2.4.b Assessment approach		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.	

All tuna stock assessments have been used to estimate the MSY and other reference points, and these have been used to determine stock status. This meets SG80.

1.2.4.c Uncertainty in the assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The assessment **identifies major sources** of uncertainty.	The assessment **takes uncertainty into account**.	The assessment evaluates stock status relative to reference points in a **probabilistic** way.

All IOTC stock assessments attempt a probabilistic approach which is subsequently used, where there is sufficient information, to give management advice in the form of risk (projection tables and Kobe plots). Therefore, there is an argument that all assessments, where this is achieved, meet SG100. However, we have applied judgement whether the probabilities are really being estimated and whether probabilities are reported in a form suitable for decision making, such as in risk tables.

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 combined across the model grid and presented in 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). An MP for skipjack tuna comes into effect in 2025, which notes the objective of ensuring that the fishery maintains biomass above the MSY level with very high probability (>90% in reference simulations and >70% for robustness test simulations) (IOTC Res. 24/07). Therefore, uncertainty is carried through from the assessment to management advice, meeting SG80 and SG100.

1.2.4.d Evaluation of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.

Application of SS3 to skipjack has been relatively recent. New data are becoming available (e.g., extended pole and line and purse seine abundance indices), which may have a significant impact on estimates. The current assessment grid covers the states of nature, but base the grid on the same model with different parameter settings. Various credible hypotheses regarding stock structure, life history, and changes in fleets have not been explored yet. For example, the current model is spatially aggregated, which given skipjack's high mortality and relatively small size, may be affecting assessment in unknown ways. Because the implications of alternative model structures have not yet been rigorously explored, SG100 is not met.

1.2.4.e Peer review of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment of stock status is subject to peer review.	The assessment has been **internally and externally peer** reviewed.

The stock assessments are reviewed through the Working Party system of the IOTC's Scientific Committee. The Second IOTC Performance Review recommended that external peer review of stock assessments be incorporated as standard best practice. This would be especially important if the assessments are not just updates.

External experts are regularly invited to participate in the Working Party meetings. However, the structure of the WP meeting has limited the degree of both external and internal review. Levels of review are clearly adequate to meet SG80. Short publicly available technical reports based on external reviewers' observations have been made available for previous bigeye, skipjack and yellowfin stock assessments, although this may not take place for every stock assessment which are often just updates. Additionally in 2023, an independent panel of four experts reviewed the 2021 assessment of yellowfin tuna, and the 2024 assessment has taken account of the recommendations of this review. As the current external reviews are publicly available, the fishery meets SG100.

All SG60 and SG80 were met, and 3 out of 4 SG100 were met.

PI 1.2.4 : 95

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North Pacific Albacore

1.1 Outcome

P.1.1.1 Stock Status

1.1.1.a Stock status relative to recruitment impairment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
It is **likely** that the stock is above the point of recruitment impairment (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.

The most recent stock assessment by the Albacore Working Group of ISC was in 2023 (ISC 2023). SSB (2021) was estimated at 54% B_0 (95%CI 40%-68%), which is 2.7 times above the default MSC value for the PRI of 20% B_0 (CR3.1 GSA2.2.3). The stock assessment estimates B_{MSY} analytically at 18% of B_0, but this estimate is not used in the management system, because the relative depletion they imply is not acceptable given the limited confidence in the estimated values. There is a limit reference point set at 14%B_0 in the harvest strategy. Because B_{2021} was estimated to be well above the more precautionary PRI of 20% B_0 with a high degree of certainty, SG100 is met.

1.1.1.b Stock status in relation to achievement of maximum sustainable yield (MSY)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

The 2023 stock assessment provides an analytical estimate of B_{MSY} at 18% of B_0, which is low (implying high depletion) and uncertain, and is not considered suitable as a reference point for management purposes. Accurate estimates of B_{MSY} in the type of stock assessment model used depends on good estimates of the stock-recruit relationship, which is difficult to achieve in practice. In this circumstance, MSC guidance is that 40% B_0 could be used as a suitable proxy for B_{MSY} in the sense intended by MSC (CR3.1 GSA2.2.3), and this is used to evaluate this scoring issue.

B_{2021} was estimated at 54% B_0 (95%CI 40%-68%) in the base case model, so there is greater than 95% probability the stock is above the B_{MSY} proxy. The report also highlights the output of two of the sensitivity runs, which are associated with uncertainties in growth. These give higher and lower estimates of B_{2021} relative to $B_{0,}$ respectively: 36% and 65%. They also provide estimates for the 2020 base case model updated to 2023, but note that this model may not have converged, so this estimate may not be robust.

On this basis, it is highly likely that spawning stock biomass is at or above a level consistent with MSY, as defined by the precautionary MSC default, but there may not be a ‘high degree of certainty’ that the stock is above that level, so SG80 is met, but SG100 is not met.

All SG60 and SG80 were met, and 1 out of 2 SG100 were met.

PI 1.1.1 : 90

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1.2 Harvest Strategy (Management)

P.1.2.1 Harvest Strategy

1.2.1.a Harvest strategy design		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **expected** to achieve stock management objectives reflected in PI 1.1.1/PI 1.1.1A 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/PI 1.1.1A 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/PI 1.1.1A SG80.

The general objective of the WCPFC is to maintain populations of tunas and tuna-like fishes at levels that will permit maximum sustainable yield (MSY). A specific commitment to long-term sustainable fisheries management was adopted at the Western and Central Pacific Fisheries Commission in 2014 (CMM 2014-06) and revised in 2022 (CMM 2022-03). North Pacific albacore is included in the workstream of the Northern Committee.

IATTC and WCPFC both adopted an identical harvest strategy for North Pacific albacore in 2022 (IATTC: Resolution C-22-04; WCPFC: HS 2022-01). This was updated in 2023 by both parties (IATTC: Resolution C-23-02; WCPFC: HS 2023-01) to incorporate a full HCR (management procedure), as proposed by the Northern Committee (NC19 summary report, Attachment I).

The harvest strategy fixes three reference points (limit: 14% B_0; threshold: 30 %B_0; target: $F_{45\%}$) and agrees 20% as the maximum acceptable risk for $B<B_{LIM}$. The 2023 HCR sets a reference point F_{min}, which is the fishing intensity to be set where $B<B_{LIM}$ with a probability of 50% or greater, in the absence of specified rebuilding measures. F_{min} is set at $F_{87\%}$ (i.e., the fishing intensity producing long-term equilibrium biomass at 87% spawning potential ratio). Above the threshold biomass F is set at the target level, while between the two biomass reference points, F is set to decline linearly from F_{target} to F_{min}.

At the same time, IATTC Resolution C-05-02 and WCPFC CMM 2019-03 remain in force, which also state the same thing: i.e., CPCs/CCMs should take measures to ensure that fishing effort on North Pacific albacore does not increase above “current levels”. IATTC has also passed Resolutions C-13-03 and C-18-03, which improve the reporting framework.

The 2023 stock assessment estimates $F_{2018\text{-}2020}$ at $F_{59\%}$, below the target reference point in the HCR ($F_{45\%}$). Fishing intensity is estimated to have declined since the 2002-4 reference period (see ISC 2023, Figure ES8).

Ten-year projections from the stock assessment model were conducted using either a constant fishing intensity at the 2018-2020 level, or a randomly resampled fishing intensity from the time series 2005-2019. Both suggest a <5% probability of the biomass dropping below the limit reference point (LRP) (14% B_0) and a high probability of F remaining below the target level (>75%), across years 2021 to 2031.

On this basis, the harvest strategy can be expected to achieve stock management objectives; SG60 is met.

In the longer term, the current management measures to implement the harvest strategy would not necessarily be responsive to the state of the stock, or achieve stock management objectives (maintain biomass above the LRP), since there is currently no means of controlling catch or effort directly and no means of enforcing the requirements on fishing effort at regional level, or of allocating catch or effort between fleets if they need to be limited to comply with the HCR. The 2023 harvest strategy is a significant improvement on previous ones, in that it sets a maximum risk associated with the limit reference point and establishes a formal HCR to reduce fishing mortality from a threshold level of biomass well above the LRP.

While noting that the trends in effort and fishing intensity since the reference period have been downwards, and the stock assessment projections suggest that the risk of such tools being required in the near future is low, the lack of evidence for parts of the strategy that will ensure exploitation is reduced as the PRI is approached or keep the stock around MSY when under pressure to increase catches is currently lacking. SG80 and SG100 are not met. To improve this score, more evidence is required for the HCR (management procedure) to be able to bring about the required changes in fishing intensity at lower stock levels.

1.2.1.b Harvest strategy evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **likely** to work based on prior experience or plausible argument.	The harvest strategy has been **tested** and is expected to meet the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80 or there is evidence that the harvest strategy is achieving its objectives reflected in PI 1.1.1/ PI 1.1.1A SG80.	The performance of the harvest strategy has been **evaluated** and evidence exists to show that it is achieving the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80, including being clearly able to maintain stocks at target levels.

There is evidence that the harvest strategy is achieving its objectives at present (stable or declining fishing intensity, low probability of the biomass dropping below the LRP). If the harvest strategy can be maintained into the future, there is evidence that objectives will continue to be met (projections based on recent or long-term fishing intensity). WCPFC and IATTC have implemented a harvest strategy that requires a reduction in fishing intensity below the threshold biomass reference point to a minimum level at the LRP, with a formal HCR put in place in 2023. SG80 is met.

The harvest strategy is new but has been based on an MSE process concluded in 2021. Therefore, some testing has been undertaken, and if implemented as intended, should be able to achieve stock management objectives set out in the target reference point, limit reference point, and associated risk level. However, until all components of the strategy are implemented, including management tools, such that it can be shown to limit harvest as required, the harvest strategy cannot be considered as fully evaluated, so SG100 is not met.

1.2.1.c Harvest strategy monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Monitoring is in place that is expected to determine whether the harvest strategy is working.		

Monitoring of catch, effort, size, and other elements are sufficient that the stock assessment can determine that the harvest strategy is working (see above). SG60 is met.

1.2.1.d Harvest strategy review		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The harvest strategy is periodically reviewed and improved as necessary.

A formal harvest strategy (C-22-04 and C-23-02 for IATTC and equivalents for WCPFC) has recently replaced the previous interim harvest strategy. The management procedure set out in the harvest strategy was developed using an MSE. CMM 2005-03 was reviewed annually by the Northern Committee and was replaced by CMM 2019-03 with small changes. With evidence of evaluation and improvement, SG100 is met.

1.2.1.f Review of alternative measures		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There has been a review of **alternative measures** to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **review** every 5 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock and they are implemented as appropriate.	There is a **review** that happens every 2 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock, and they are implemented, as appropriate.

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. Under v3.1 of the MSC Standard, this must include measures regarding unwanted catch of the target species by ghost gear.

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.

A 2009 review and survey of ghost gear fishing of target species indicated a relatively low impact for longline and purse seine gear, although ghost fishing information on these gears was limited. It is reasonable, therefore, to assume that this statement remains applicable and that the main issue would arise from lost FADs associated with purse seine fishing. This review also considered preventative measures.

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). Quantification of discards generally depends upon the presence of at-

sea observers, and observer coverage has generally been increasing. Discarding of target tunas has been considered low risk to the fisheries compared to other concerns.

Incorporating estimates of discards in catch estimates and the stock assessment amounts to a review of discards generally, but the scoring guideposts require a review of "measures" to minimise discarding of the target stock rather than a review of discarding itself. Whether discards are significant enough to require a review to work out how to reduce them would need to be determined on a case-by-case basis. The nature and frequency of reviews for the effects of ghost fishing is much lower than for discards (see MSC Standard Version 3.1, SA2.4.5.1 and SA3.7.2.3). Nevertheless, while ghost fishing (e.g., lost FADs) may be significant risk to bycatch and ETP species, it is unlikely that they cause any significant mortality to the target tuna species as they either do no capture tuna (FADs) or are designed to require active fishing (purse seine nets, longline). Exceptions for some fisheries, like gillnets, might still apply, and national reviews might be required for these gears, particularly for ghost fishing.

For the purposes of scoring this issue here, estimation of discarding and evidence of response is used to indicate a review (i.e., considering levels of discard and by extension its reduction where possible).

The main concern with discards of tuna appears to apply to the purse seine fleet. Generally, discards of tunas from other gears targeting tuna are considered very small. For this reason, this issue is not scored for albacore.

All SG60 were met, and 1 out of 2 SG80 were met.

PI 1.2.1 : 70

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P.1.2.2 Harvest control rules and tools

1.2.2.a HCRs design and application		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
HCRs are **expected to reduce the exploitation rate as the PRI is approached** and are either **generally understood** and **in place**, or **available**.	**Well-defined** HCRs **are in place** that **ensure** the exploitation rate is reduced as the PRI is approached, and are expected to keep the stock **fluctuating around** a target level consistent with (or above) MSY, or for key LTL species at levels 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**.

A HCR (management procedure) was agreed by IATTC and WCPFC in 2023 (IATTC: Resolution C-23-02; WCPFC: paragraph 70 and Attachment 6 to WCPFC-Outcomes 2023) following the proposal of the Northern Committee (WCPFC NC19 2023, Attachment I).

The HCR is based on three reference points: limit 14% B_0; threshold 30 % B_0; target $F_{45\%}$. If the biomass is below the limit reference point with 50% probability or above, F should not exceed F_{min} (unless in the context of a set of alternative specified rebuilding measures). F_{min} is set at the fishing intensity producing long-term equilibrium biomass at 87% spawning potential ratio (SPR $F_{87\%}$). Above the threshold biomass F is set at the target reference point level, while between the threshold and limit biomass, F should decline linearly from F_{target} to F_{min}.

SG60 requires that the HCR be expected to reduce the exploitation rate as the biomass approaches the PRI, which is clearly achieved by this system; SG60 is met. SG80 requires the HCR to be well-defined, which is the case (e.g., see IATTC Resolution C-23-02), and that it keeps the stock fluctuating at a level consistent with MSY. B_{MSY} is estimated analytically in the stock assessment to occur at a low biomass relative to those used in the HCR (18% B_0 – i.e., below the threshold and relatively close to the limit). The threshold biomass, below which adjustments to F should start to be made, is set at 30% B_0, which is well above the analytical estimate of B_{MSY}, but below the MSC's proxy of 40% B_0, in the absence of a suitable analytical estimate (see PI 1.1.1 for details). The target F of $F_{45\%}$ (associated with a long-term equilibrium biomass at 45% SPR) has historically been in the upper (more precautionary) range of the reference points used to evaluate stock status ($F_{30\%}$-$F_{50\%}$) and is clearly considered by ISF scientists as a reference point compatible with a productive stock. SG80 is met.

SG100 requires that the HCR maintain the stock at or above the target level, or another level consistent with the ecological role of the stock. Since the threshold biomass is set below MSC's precautionary proxy for B_{MSY} without full scientific justification, this may not be the case, so SG100 is not met.

1.2.2.b The robustness of HCRs to uncertainty		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

The new harvest strategy has been established based on an MSE, which was completed in 2021. This agrees reference points (2022) and a formal management procedure (HCR) (2023) (IATTC C-22-04 and C-23-06; WCPFC20 Outcome 2023). Given the high degree of testing in the MSE, the HCR is expected to be robust to the main uncertainties. SG80 is met. The MSE provides evidence, so SG100 is met.

1.2.2.c Evaluation of HCRs		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

A formal management framework and an HCR are in place in both IATTC and WCPFC (C-22-04, C-23-02, WCPFC HS 2023-01). However, these say nothing about management tools. There is a lack of evidence that there are effective tools in place to control fishing capacity, despite the requirements of C-05-02 and CMM 2019-03. Should a reduction in catch or effort become necessary to apply the HCR, C-23-02 states (paragraph 1 i. and j.):

IATTC will recommend adjustment to the existing Resolution for North Pacific Albacore to ensure fishing intensity is at or below the level set forth by this HCR … IATTC scientific staff in 2024 shall collaborate with the ISC to advise how fishing intensity should be interpreted to actual management under this harvest strategy

The WCPFC version (WCPFC20 Outcomes, Attachment 6) states (paragraph 5):

the Northern Committee will recommend adjustment to the existing CMM for North Pacific Albacore to ensure fishing intensity is at or below the level set forth by this HCR

The stock assessment suggests that fishing mortality has declined in recent years. Catches had been falling but have increased significantly since 2020, according to the data provided by ISC, although they remain below historic levels. The stock is highly likely to be above the limit and threshold reference points. Nevertheless, some countries have previously expressed concern in the Northern Committee about declining CPUEs. In this situation of increased risk to the stock under the current management regime, it is not clear that tools are in place at present – the harvest strategy requires them to be selected and implemented only when they are required. This means that there is not really any evidence available as to whether they can control exploitation. SG60 is not met.

Only 1 out of 2 SG60 were met.

PI 1.2.2 : Fail

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P.1.2.3 Information / monitoring

1.2.3.a Range of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

The 2023 stock assessment uses fishery-specific catch data, size data, and various abundance indices; the assessment had a choice of various indices of relative abundance with good contrast, but only one was considered usable. The index was adjusted from the previous assessment in 2020 to be more representative of adult female biomass. Biological data, including tagging, age and growth, and sex composition data, are also available, although some uncertainties remain, e.g., concerning growth. Historical data may also be uncertain; the most recent assessment used a relatively short time series from 1994-2018, due to poor data in the earlier part of the time series. The stock assessment reports also noted higher than usual uncertainties in catch estimates in 2020 and 2021 due to COVID, with knock-on effects on the assessment. Overall, however, data are comprehensive for the most recent period, and data not used directly in the stock assessment, such as environmental studies, are also available. SG100 is met.

1.2.3.b Monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Stock abundance and UoA removals are monitored and **at least 1 indicator** is available and monitored with sufficient frequency to support the harvest strategy.	Stock abundance and UoA removals are **regularly monitored at a level of accuracy and coverage consistent with the harvest strategy**, and **1 or more indicators** are available and monitored with sufficient frequency to support the harvest strategy.	**All information** required by the harvest strategy is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent **uncertainties** in the information (data) and the robustness of assessment and management in dealing with this uncertainty.

The harvest strategy is based on fishing effort, which can be measured in the stock assessment (as F: fishing intensity, 1-SPR) using the data described above. A single abundance index was used. Female SSB can also be estimated relative to various reference points set out in 1.2.1.a and 1.2.2.a, and

fishing mortality can be estimated to apply the HCR. On this basis, data are sufficient for the requirements of the harvest strategy; SG80 is met.

Concerning SG100, it is probably not the case that all information is collected with a high frequency and high degree of certainty and only one abundance index was considered sufficiently reliable; furthermore, the stock assessment and ISC note a variety of uncertainties (e.g., in age/growth, sex-specific growth, historical data, natural mortality), some of which have a significant effect on the conclusions of the assessment and the management advice. SG100 is not met.

1.2.3.c Comprehensiveness of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	There is good information on all other fishery removals from the stock.	

Overall, catch data are sufficient to meet SG80. While some problems exist, they are being addressed and do not increase the risk for the assessment and management of the stock. The WCPFC Secretariat noted considerable improvements in data submission since 2017. The stock assessment excludes the period (before 1994) when catches and discards are thought to have been recorded poorly by some fleets.

All SG60 and SG80 were met, and 1 out of 2 SG100 were met.

PI 1.2.3 : 90

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P.1.2.4 Assessment of stock status

1.2.4.a Appropriateness of assessment to stock under consideration		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment is appropriate for the stock and for the harvest strategy.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.

North Pacific albacore stock was assessed in 2023 using the Stock Synthesis 3 modelling framework. This is a modern, well-tested statistical catch-at-age modelling approach that has wide application across a large number of fisheries. 35 fisheries were defined on the basis of gear, location, season, and the unit of catch (numbers or weight). A single quarterly index of relative abundance was used (Japanese longline fishery “F12”), although other indices were available but rejected for various reasons. Size composition data were available for 23 fisheries, and catch for all 35 fisheries. Catch was treated as known with low error, except for the terminal two years (2020 and 2021), because of uncertainties in sampling due to COVID protocols. These data have been sufficient to conduct assessments and to evaluate the harvest strategy, although the modelling period was relatively short: 1994-2021 (index starts in 1996). Stock structure data are limited but are consistent with the North Pacific Ocean-wide stock. Species biology is incorporated (e.g., size structure, age and growth, estimates of natural mortality). Overall, the assessment is high quality, has been adapted to the data and biology of the species. SG100 is met.

1.2.4.b Assessment approach		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.	

The stock assessment estimates spawning stock biomass and fishing intensity in relation to a wide range of reference points, focusing on the reference points used in the harvest strategy (i.e., $F_{45\%}$, B_0), but also B_{MSY}. SG80 is met.

1.2.4.c Uncertainty in the assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The assessment **identifies major sources** of uncertainty.	The assessment **takes uncertainty into account**.	The assessment evaluates stock status relative to reference points in a **probabilistic** way.

All WCPFC stock assessments attempt a probabilistic approach, which is subsequently used, where there is sufficient information, to give management advice in the form of risk (projection tables and Kobe plots). Therefore, there is an argument that all assessments, where this is achieved, meet SG100. However, we have applied judgement whether the probabilities are really being estimated and whether probabilities are reported in a form suitable for decision making, such as in risk tables.

The stock assessment methods allow estimation of uncertainty in estimates of stock status and other parameters. Uncertainties have also been examined as alternative model structures and/or input values (sensitivities). This probabilistic information is reported in stock assessment conclusions and in projections under different scenarios and is used in risk-based decision making, so SG100 is met.

1.2.4.d Evaluation of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.

There is sufficient evidence that the model structure has been explored extensively. Various sensitivity analyses are used to evaluate alternative assumptions and model structures, selected during the stock assessment meeting, as well as in preliminary preparation workshops. These covered a wide range of issues, including biology (notably growth but also natural mortality, stock-recruitment steepness), data use (data weighting, start year, alternative indices), and model structure (selectivity functions, equilibrium catch). Diagnostics are presented and suggest the assessment is robust, so SG100 is met.

1.2.4.e Peer review of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment of stock status is subject to peer review.	The assessment has been **internally and externally peer** reviewed.

The stock assessments report is internally reviewed by the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific (ISC). The original SS3 stock assessment of North Pacific albacore was externally reviewed in 2011, and recommendations were incorporated into subsequent assessments. However, external reviews have not been conducted for the most recent stock assessment in 2023, as far as we are aware, so SG100 is not met.

All SG60 and SG80 were met, and 3 out of 4 SG100 were met.

PI 1.2.4 : 95

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South Pacific Albacore

1.1 Outcome

P.1.1.1 Stock Status

1.1.1.a Stock status relative to recruitment impairment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
It is **likely** that the stock is above the point of recruitment impairment (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.

The most recent 2024 assessment determined that overfishing is not occurring, and the stock is not in an overfished state. The stock assessment reported the median values of recent spawning biomass depletion (B_{2019_2022}/ B_0) and recent fishing mortality (F_{2015_2018}/F_{MSY}) over an uncertainty grid of 37 models to define stock status. The estimated B_{MSY} is low: 11%-22% B_0. $B_{2019\text{-}2022}$ is estimated to be 48% B_0, with the 80th percentile ranging from 36% to 62%. The agreed limit reference point (LRP) is 20% B_0. Given the very low B_{MSY}, an appropriate PRI would be 75% B_{MSY}, for the upper bound of B_{MSY} or this LRP point, which is more precautionary (CR3.1 GSA2.2.3). Therefore, there is a high degree of certainty that the stock was above any candidate PRI in 2019-2022.

Short-term projections suggest that the stock may increase in the short term, then fall slightly below the current (2022) SSB before levelling off. While the median projection suggests that the stock will remain at approximately 50% B_0, in the long term, the uncertainty associated with this projection is

quite wide (See Teears et al. 2024, their Figure 62). Given that the stock was well above any candidate PRI in 2019-2022, the SG100 level is reached.

1.1.1.b Stock status in relation to achievement of maximum sustainable yield (MSY)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

The most recent 2024 assessment determined that overfishing is not occurring, and the stock is not in an overfished state. The stock assessment reported the median values of recent spawning biomass depletion (B_{2019_2022}/ B_0) and recent fishing mortality (F_{2015_2018}/F_{MSY}) over an uncertainty grid of 37 models to define stock status. The estimated B_{MSY} is low: 11%-22% B_0. $B_{2019\text{-}2022}$ is estimated to be 48% B_0, with the 80th percentile ranging from 36% to 62%. None of the sensitivity analyses showed the stock being below SSB_{MSY}, and further, the 95% confidence limit did not approach the current estimate of B_{MSY} (See Teears et al. 2024, their Figure 62 and Tables 5 and 9). As such the SG100 level is reached.

It should be noted that the current target reference point (56%B_0) is well above the MSY point used here. The target reference point takes into account the need for higher longline catch rates to make all longline fisheries viable.

All SG60, SG80 and SG100 were met.

PI 1.1.1 : 100

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1.2 Harvest Strategy (Management)

P.1.2.1 Harvest Strategy

1.2.1.a Harvest strategy design		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **expected** to achieve stock management objectives reflected in PI 1.1.1/PI 1.1.1A 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/PI 1.1.1A 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/PI 1.1.1A SG80.

The general objective of the WCPFC is to maintain populations of tunas and tuna-like fishes at levels that will permit maximum sustainable yield (MSY). A specific commitment to long-term sustainable fisheries management was adopted at the Western and Central Pacific Fisheries Commission in 2014 (CMM 2014-06) and revised in 2022 (CMM 2022-03). At its 2015 meeting, the WCPFC adopted a workplan for developing and implementing a harvest strategy approach that includes TRP, HCR, and other elements. The workplan has been regularly reviewed and adjusted as needed (2016-2023).

Management of the albacore stock throughout the South Pacific is a responsibility of the Western and Central Pacific Fisheries Commission (WCPFC). The current harvest strategy is set out in CMM 2015-02, which states that CCMs shall not increase the number of their fishing vessels actively fishing for South Pacific albacore in the Convention Area south of 20°S above 2000-2005 levels, although it allows small island developing states (Pacific islands) to pursue a responsible level of development of their domestic albacore fisheries; it also does not put any checks on effort north of 20°S, which is non-negligible. Nevertheless, catch has been declining gradually but constantly since 2012. Projections suggest a low probability that it will fall below the LRP under projection scenarios with recent catch levels.

WCPFC has put in place a commitment to developing a more formal and structured harvest strategy, incorporating a clear HCR; this is set out in CMM 2022-03 (replacing CMM 2014-06), CMM 2014-06, and the regularly updated associated workplan, and there is a South Pacific Albacore Roadmap Intersessional Working Group set up to work on this. This working group has generally agreed to set catch limits (although how this will be done has not yet been agreed) covering both WCPFC and IATTC regions, and to incorporate north of 20°S into the harvest strategy. Already, some progress has been made as managers have requested a number of projections based on the most recent assessment. While the projection work invited further management action through a new CMM, such action has yet to be taken.

On this basis, it can be argued that the harvest strategy is expected to achieve stock management objectives, at least for some time into the future; SG60 is met. It is not yet responsive to the state of the stock, so SG80 is not met.

1.2.1.b Harvest strategy evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **likely** to work based on prior experience or plausible argument.	The harvest strategy has been **tested** and is expected to meet the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80 or there is evidence that the harvest strategy is achieving its objectives reflected in PI 1.1.1/ PI 1.1.1A SG80.	The performance of the harvest strategy has been **evaluated** and evidence exists to show that it is achieving the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80, including being clearly able to maintain stocks at target levels.

Countries undertake to control catches mainly through effort limits and limits on capacity (i.e., number of vessels targeting albacore). Countries are required to monitor and report catches and fishing activities, and fishing activity targeting albacore appears to be well monitored, although the measure of effort or capacity stipulated in CMM 2015-02 is not particularly easy to quantify. For the moment, spawning biomass has been estimated above the level giving a 5% risk of falling below the LRP and $F<<F_{MSY}$. Hence, there is evidence that (for the moment) the harvest strategy is achieving its objectives; SG80 is met. Its performance has not, however, been 'fully evaluated', nor is it completely clear that in the long run it will be able to maintain biomass at target levels (depending on what the target is finally agreed to be), as there are no clear catch or effort limits. Some work is underway, including a number of projections to examine the behaviour of the modelling given the most recent benchmark. However, this examination is in the preliminary stages and is not fully formed. As such SG100 is not met.

1.2.1.c Harvest strategy monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Monitoring is in place that is expected to determine whether the harvest strategy is working.		

All significant fisheries report catch and effort data (operational or aggregated) to the scientific authority. Countries are required to report annually to WCPFC the details of their fisheries (Part 1 reports) and compliance with the conservation and management measures (CMMs). Stock assessments are conducted every 2-3 years. The harvest strategy is being monitored, so SG60 is met.

1.2.1.d Harvest strategy review		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The harvest strategy is periodically reviewed and improved as necessary.

There has not been a formal review of the harvest strategy; it has been adjusted several times (CMMs 2005-05, 2010-05 and 2015-02), but not noticeably improved during this process. SG100 is not met.

1.2.1.f Review of alternative measures		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There has been a review of **alternative measures** to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **review** every 5 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock and they are implemented as appropriate.	There is a **review** that happens every 2 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock, and they are implemented, as appropriate.

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. Under v3.1 of the MSC Standard, this must include measures regarding unwanted catch of the target species by ghost gear.

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.

A 2009 review and survey of ghost gear fishing of target species indicated a relatively low impact for longline and purse seine gear, although ghost fishing information on these gears was limited. It is reasonable, therefore, to assume that this statement remains applicable and that the main issue would arise from lost FADs associated with purse seine fishing. This review also considered preventative measures.

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). Quantification of discards generally depends upon the presence of at-sea observers, and observer coverage has generally been increasing. Discarding of target tunas has been considered low risk to the fisheries compared to other concerns.

Incorporating estimates of discards in catch estimates and the stock assessment amounts to a review of discards generally, but the scoring guideposts require a review of “measures” to minimise discarding of the target stock rather than a review of discarding itself. Whether discards are significant enough to require a review to work out how to reduce them would need to be determined on a case-by-case basis. The nature and frequency of reviews for the effects of ghost fishing is much lower than for discards (see MSC Standard Version 3.1, SA2.4.5.1 and SA3.7.2.3). Nevertheless, while ghost fishing (e.g., lost FADs) may be significant risk to bycatch and ETP species, it is unlikely that they cause any significant mortality to the target tuna species as they either do no capture tuna (FADs) or are designed to require active fishing (purse seine nets, longline). Exceptions for some fisheries, like gillnets, might still apply, and national reviews might be required for these gears, particularly for ghost fishing.

For the purposes of scoring this issue here, estimation of discarding and evidence of response is used to indicate a review (i.e., considering levels of discard and by extension its reduction where possible).

The main concern with discards of tuna appears to apply to the purse seine fleet. Generally, discards of tunas from other gears targeting tuna are considered very small. For this reason, this issue is not scored for albacore.

All SG60 were met, and 1 out of 2 SG80 were met.

PI 1.2.1 : 70

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P.1.2.2 Harvest control rules and tools

1.2.2.a HCRs design and application		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
HCRs are **expected to reduce the exploitation rate as the PRI is approached** and are either **generally understood** and **in place**, or **available**.	**Well-defined** HCRs **are in place** that **ensure** the exploitation rate is reduced as the PRI is approached, and are expected to keep the stock **fluctuating around** a target level consistent with (or above) MSY, or for key LTL species at levels 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**.

At SG60, MSC allows a harvest control rule to be 'available' rather than 'in place' if certain requirements summarised below are met (see SE2.2.3-2.2.7 for details). In scoring issue (a) at the SG60 level, the team shall accept "available" HCRs instead of HCRs that are "in place" if:

- 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 B_{MSY} within the next 5 years, and
- "Generally understood" or "well-defined" HCRs are in place for some other UoAs that are under the control of the same management body, and of a similar size and scale as the UoA.

The MSC's requirements for scoring an 'available' HCR is met by CMM 2022-03. For South Pacific albacore, stock biomass has not been previously reduced below the MSY level, according to the 2024 stock assessment. In addition, a well-defined management procedure (HCR) has been put in place for skipjack, which has a similar size and scale as the albacore fishery, by the WCPFC (CMM 2022-01).

While this stock of Albacore has not fallen below B_{MSY}, we noted that no convincing management actions were put in place for bigeye tuna, despite the perception of the stock from 2011-2017 being that it was overfished and depleted, and suggested that some demonstrable progress would be required towards a formal harvest strategy and HCR (as per CMM 2022-03) for a convincing argument to be made that effective action would be taken if required. This undermines any "available" HCR for other stocks, including South Pacific albacore, although the South Pacific Albacore Roadmap Intersessional Working Group Meeting reports slow progress in agreeing harvest limits. On balance, there has been some progress demonstrated in the development of a long-term harvest strategy and harvest control rule and in the implementation of the skipjack HCR under the same RFMO. This also includes progress by the IATTC to consider reference points proposed by the WCPFC at their annual meeting in 2026. However, based on current in-place management, SG60 is met (an HCR can be considered to be realistically 'available' with some evidence that control would be appropriate), but SG80 is not met because no clear HCR is in place yet.

1.2.2.b The robustness of HCRs to uncertainty		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

Since there is no well-defined HCR in place, it cannot be robust to the main uncertainties. SG80 is not met.

1.2.2.c Evaluation of HCRs		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

Under SE2.2.6 and 2.2.7, to conclude that 'available' HCRs are 'effective' (SG60), MSC requires evidence of i) the HCRs are effectively used in other stocks or fisheries under the same management body; or ii) a formal agreement or framework with trigger levels which will require the development of a well-defined HCR. It also requires consideration of current exploitation rates in relation to biological reference points, the agreed trigger level and this is consistent with long-term sustainable harvest.

It is clear that fishing mortality is lower than F_{MSY}. Fishing the stock at MSY level would require a large increase in effort from current levels. A formal agreement for the development of a well-defined HCR is provided by CMM 2022-03, with a framework provided by the updated workplan. A trigger level is provided by an agreed limit reference point (20% B_0) which is thought to be close to B_{MSY} and above the PRI. An interim target reference point was agreed by WCPFC15 (56% B_0), which is estimated above B_{MSY}.

Stock projections suggested that under the current management effort regime, biomass will stabilise in the long term above the LRP with ~95% probability. There was not an imminent requirement for additional tools to be put in place in terms of risk to the stock (although there may be in terms of maintaining the stock at an appropriate target level). On this basis, there is some evidence that tools are available and have been effective in limiting exploitation so far, so SG60 is met.

SG80 is not met because there are no stock-wide tools in place to control exploitation, and it is not clear if there are suitable tools for rebuilding should that be required. There has been some agreement to implement catch limits, but there is no consensus yet on the form these would take.

To improve this score, some progress needs to be made towards implementing tools, such as clear effort or catch limits, to maintain the stock biomass at the agreed target level or recover it as necessary (as per CMM 2022-03).

All SG60 were met, but no SG80 or SG100.

PI 1.2.2 : 60

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P.1.2.3 Information / monitoring

1.2.3.a Range of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

A 2024 review of the scientific data available to WCPFC (and previous iterations of this document) notes that there have been considerable improvements in the last few years. In 2024, all CCMs provided aggregate catch and effort estimates for 2023 by the deadline (30 April), and the quality of these data has also improved (fewer gaps). Operational-level data is provided by most fleets, with the main gap being low coverage of the Indonesia and Vietnam fleets. Purse seine fisheries are required to have 100% observer coverage. Although not all achieve it, observer coverage is high, providing detailed operational-level data and information on catch proportions by species, etc.

WCPFC has provided technical assistance to Vietnam, Indonesia, and the Philippines to address data issues, although some problems remain for these CCMs. Work is also underway to improve historical data. The key data gaps identified in the data availability report generally relate to species other than the main tuna species under WCPFC management – e.g., sharks, species that are discarded, and species lacking good length/weight conversion factors.

The information used by the scientific authority to structure and inform the stock assessment for South Pacific albacore (and hence support the harvest strategy) includes fishery-dependent catch, effort, size, tagging, and biological data. Longline CPUE data provided the primary abundance index, and all indices were estimated by the South Pacific Commission based on data provided by the fisheries. There are some gaps in the data, however, and there is also uncertainty around growth rates, regional abundance, and age-specific movement among regions.

The harvest strategy (CMM 2015-02) depends on being able to measure the number of vessels 'actively fishing for South Pacific albacore', which is not easy; it is essentially left to flag states to define what constitutes 'actively fishing' and they then report to the Commission as part of their annual reporting on compliance with CMMs, but there is a regional register of vessels fishing in the region (see https://www.wcpfc.int/vessels). Because sufficient data are available to support the harvest strategy, SG80 is met. SG100 is not met because significant data are still missing, and issues such as stock structure and changes in regional abundance remain highly uncertain. There have been improvements in understanding stock structure through modelling, but information is still not comprehensive.

1.2.3.b Monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Stock abundance and UoA removals are monitored and **at least 1 indicator** is available and monitored with sufficient frequency to support the harvest strategy.	Stock abundance and UoA removals are **regularly monitored at a level of accuracy and coverage consistent with the harvest strategy**, and **1 or more indicators** are available and monitored with sufficient frequency to support the harvest strategy.	**All information** required by the harvest strategy is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent **uncertainties** in the information (data) and the robustness of assessment and management in dealing with this uncertainty.

Catch data from all fleets are relatively complete and sufficient for the stock assessment. The abundance indices are primarily obtained from catch and effort data, particularly from the many longline fleets operating across the region, giving relatively long time series of information. Cohorts recruiting to specific fisheries are evident in catch length distributions making the data very informative on recruitment to the fishery.

There has been an analysis of operational longline data to construct both the CPUE time series and regional weights and the analysis of longline size data. The stock assessment included results from on-going studies of albacore life history (in particular results from an age and growth study, re-evaluation of otolith ageing and improved modelling of length-at-age) aimed to address uncertainty around growth, which has troubled previous assessments. This meets SG80.

However not all information for all fleets was available to the most recent assessment although data reporting has consistently improved, and the worst data gaps apply to countries without significant albacore fisheries. Perhaps the most significant gap in information is now age-related stock movement, which highlights the limited tagging data available, and the lack of contrast in the abundance indices which suggests their relationship with abundance over the whole time series is non-linear. Because some gaps in data remain, SG100 is not met.

1.2.3.c Comprehensiveness of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	There is good information on all other fishery removals from the stock.	

Catches appear to be reported at an acceptable level of accuracy for the stock assessment, meeting SG80. Data have been identified as missing, but these are generally related to operational data (fishing gear, target species and fishing activity) rather than catch. Discards, incidental mortality and recreational catch are not generally reported. As long as these sources of mortality remain constant and/or negligible, this lack of recording should not present a problem to the stock assessment. SG80 is met.

All SG60 and SG80 were met, and 0 out of 2 SG100 were met.

PI 1.2.3 : 80

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P.1.2.4 Assessment of stock status

1.2.4.a Appropriateness of assessment to stock under consideration		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment is appropriate for the stock and for the harvest strategy.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.

The assessment carried out in 2024, like the previous assessments, used the integrated stock assessment software MULTIFAN-CL (or MFCL), under the assumption that there is a single stock of albacore tuna in the South Pacific Ocean. Compared to the previous stock assessment in 2021, the data and software were updated. The population was modelled using quarterly time steps, extending through 1960-2023.

The assessment method is clearly appropriate for the stock and available data, and is able to estimate all relevant reference points and harvest control rules, attaining SG80.

This assessment is supported by the analysis of operational longline data to construct both the CPUE time series regional weights and the analysis of longline size data. The assessment included an updated model combining information on natural mortality and growth consistent with otolith aging and length-frequency data. The assessment model also used outputs of a population simulation model (SEAPODYM) that links tuna movement to oceanographic effects. Thus, the model takes into account many features of the biology of albacore. This takes account of the major features relevant to the biology of the species and covers all fisheries, so SG100 is met.

1.2.4.b Assessment approach		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.	

The stock assessment estimates spawner biomass and fishing mortality in relation to a range of reference points, including MSY reference points and depletion reference points. Other reference points, such as economic-based reference points, have also been considered in the past. As is often the case, the estimates of reference points depend on assumptions about stock-recruitment steepness and other parameters, but estimates are sufficiently robust that the stock status can be determined with reasonable confidence. SG80 is met.

1.2.4.c Uncertainty in the assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The assessment **identifies major sources** of uncertainty.	The assessment **takes uncertainty into account**.	The assessment evaluates stock status relative to reference points in a **probabilistic** way.

All WCPFC stock assessments attempt a probabilistic approach, which is subsequently used, where there is sufficient information, to give management advice in the form of risk (projection tables and Kobe plots). Therefore, there is an argument that all assessments, where this is achieved, meet SG100. However, we have applied judgement whether the probabilities are really being estimated and whether probabilities are reported in a form suitable for decision making, such as in risk tables.

The MFCL software fits the population model to the data using likelihood. While not claiming to be fully Bayesian (probabilistic), it does include “priors” and penalties to improve estimation and produce likelihood profiles for estimating values of interest, which are used as a measure of uncertainty. However, the assessment recognized structural errors as the largest source of uncertainty and therefore produces ranges from sensitivity analyses as a better indicator.

The stock assessment process recognised many alternative models to construct an uncertainty grid used for management advice. The model grid covered alternate steepness estimates, alternative movement scenarios, recruitment distributions between the model regions, different weights for the size data, and alternative growth and natural mortality models. These were identified as the major sources of uncertainty, meeting SG60, and included in estimating stock status and providing advice, so SG80 was also met. In addition, probabilistic stock projections have been used to provide strategy matrices for different catch levels for decision making. Because the assessment is evaluating stock status probabilistically in this way, SG100 is met.

1.2.4.d Evaluation of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.

Alternative hypotheses and assessment approaches have been explored. Many of the underlying structural assumptions of the model have been reviewed, and the assessment model and/or data have been adjusted to match research findings and changes in expert opinion and judgment. This ongoing review and adjustment is good practice and should reduce structural errors in the model. The open documentation and model review process increases confidence in the robustness of the assessment. Model diagnostics indicate that some sources of bias have been removed at each iteration, but spatial structure remains highly uncertain and not fully explored. SG100 is not met in full.

1.2.4.e Peer review of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment of stock status is subject to peer review.	The assessment has been **internally and externally peer** reviewed.

The stock assessments report is internally reviewed by WCPFC Scientific Committee, meeting SG80. The stock assessment has not yet undergone an external review. Without an external review, SG100 cannot be met.

All SG60 and SG80 were met, and 2 out of 4 SG100 were met.

PI 1.2.4 : 90

References

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North Pacific Bluefin

1.1 Outcome

P.1.1.1 Stock Status

1.1.1.a Stock status relative to recruitment impairment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
It is **likely** that the stock is above the point of recruitment impairment (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.

The Pacific Bluefin Working Group (PBFWG) of ISC (International Scientific Commission for tuna and tuna-like species in the North Pacific Ocean) conducts stock assessments of Pacific bluefin tuna. They carry out a benchmark assessment every 4 years, with an update assessment in the midpoint years. The most recent assessment was in 2024.

MSC proposes proxy reference points for the PRI of 20% B_0, 50% $B_{MSY,}$ or 75% B_{MSY}, noting that estimates of the PRI should be used for preference where available. The current (second) rebuilding target set by WCPFC and IATTC is 20% B_0 with 60% probability.

The SSB has gradually increased in the last 12 years (2011-2022), coinciding with a decline in fishing mortality over the last decade, and ISC estimates that the rate of growth is increasing. The 2022 SSB is estimated to be 23.2% B_0, increased from 9.2% B_0 in 2018. This value of spawner biomass is above the second rebuilding target of 20% B_0.

Since the SSB has likely exceeded PRI of 20% B_0, the SG60 level is reached. However, as shown in their Figure 10 (PBFWG BFT-SA, 2024), it is not highly likely that the stock is above 20% B_0. As such the SG80 and SG100 are not met.

1.1.1.b Stock status in relation to achievement of maximum sustainable yield (MSY)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

The stock assessment does not estimate MSY reference points, and no biomass-based limit or target reference points have been adopted for this stock. In this case, MSC proposes using 40%B_0 as a

precautionary proxy for B_{MSY}. The 2024 assessment estimated SSB_{2020} at 23.2% B_0 which is well below any estimate of B_{MSY}, as well as below the MSC default proxy. Therefore, SG80 is not met.

All SG60 were met, but no SG80 or SG100.

PI 1.1.1 : 60

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P.1.1.2 Stock Rebuilding

1.1.2.a Rebuilding timeframes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 that does not exceed **1 generation time** for the stock.

WCPFC and IATTC have adopted the same harvest strategy for North Pacific bluefin (WCPFC Harvest Strategy 2024-02, IATTC Resolutions C-23-01), with current management actions defined in WCPFC CMM 2023-02 and IATTC C-23-01. The harvest strategies state in the preamble that the long-term stock objective is a level consistent with MSY, but they do not specify a timeframe for achieving this long-term objective. Instead, they specify two interim rebuilding targets as follows:

- Median SSC 1952-2014 – to be achieved with 60% probability by 2024 under a precautionary recruitment scenario (this level is estimated to be 6.7% B_0 under the 2024 benchmark stock assessment base-case model, and according to the 2022 update assessment, has already been achieved)
- 20% B_0 under average recruitment scenario, with at least 60% probability, to be achieved by 2034 or 10 years after the first target, whichever comes first.

The 2024 $F_{\%SPR}$ is estimated to produce a 23.6% spawning potential ratio (SPR). Although no fishing mortality-based limit or target reference points have been adopted for Pacific bluefin by the IATTC and WCPFC, recent fishing mortality is below the level producing 20% SPR, which might be considered a precautionary fishing mortality limit.

Since there is no formal commitment to rebuild to a level 'consistent with MSY', no formal rebuilding plan past the second rebuilding point, that this second rebuilding target is most likely inconsistent with MSY, and that managers have increased allowable catch in response to the stock being above the second rebuilding target, SG60 is not met.

1.1.2.b Rebuilding evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 <b>specified time	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**.

The stock is monitored via a stock assessment every two years (alternate benchmark and update). While the stock has been rebuilt past its initial and second rebuilding target, managers have since increased harvest for 2025-2026 (IATTC Res. C-24-02 and WCPFC CMM 2024-01). At those removals, the stock is not expected to rebuild to a biomass "consistent with MSY" as outlined by the MSC (i.e., 40% B_0). As such, the SG60 level is reached, but the SG80 level is not

Only 1 out of 2 SG60 were met.

PI 1.1.2 : Fail

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1.2 Harvest Strategy (Management)

P.1.2.1 Harvest Strategy

1.2.1.a Harvest strategy design		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **expected** to achieve stock management objectives reflected in PI 1.1.1/PI 1.1.1A 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/PI 1.1.1A 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/PI 1.1.1A SG80.

WCPFC and IATTC have a harvest strategy in place that sets out the rebuilding objectives and timeline, and how they should be measured. The harvest strategy consists of a combination of objectives, monitoring, stock assessment, harvest control rules, and management actions. It is worth noting that 80% of the fisheries are under the auspices of WCPFC.

A stock assessment process is in place via ISC. The harvest strategy sets out 'decision rules' which form an HCR. The HCR is implemented via specific management measures, which are set out most recently in WCPFC CMM 2024-02 and IATTC C-24-01. The controls aim to reduce and maintain

catches at required levels to maintain the stock above 20% B_0, and to improve selectivity by a significant reduction in catches of individual fish weighing less than 30kg.

Based on projections from the 2024 assessment, the harvest strategy is expected to achieve the stock management objectives of maintaining the stock above 20% B_0 and allow for some further stock growth. The harvest strategy is responsive to the state of the stock, with the elements demonstrably working together, so the stock assessment matches parameters and objectives, and is implemented via cooperating CPCs.

The near-term objectives specified in the harvest strategy (interim rebuilding objectives) are not explicitly the objectives reflected in PI 1.1.1 SG80. However, the harvest strategy from both IATTC and WCPFC states MSY as the ultimate objective (IATTC Res. C-24-01). On this basis, all the elements of SG80 are met.

In relation to SG100, the harvest strategy is not 'designed' in all its elements, since (for example) IATTC and WCPFC implement the harvest strategy with different controls, and there is not a clear link between the controls applied and the stock status, other than via projections from the stock assessment under different scenarios (as there would be if there were a TAC set via an analytical process). There is also no formal strategy designed to move beyond the second interim target of 20%B_0, which is still not demonstrably consistent with MSY. SG100 is not met.

1.2.1.b Harvest strategy evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **likely** to work based on prior experience or plausible argument.	The harvest strategy has been **tested** and is expected to meet the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80 or there is evidence that the harvest strategy is achieving its objectives reflected in PI 1.1.1/ PI 1.1.1A SG80.	The performance of the harvest strategy has been **evaluated** and evidence exists to show that it is achieving the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80, including being clearly able to maintain stocks at target levels.

The evidence so far suggests that the harvest strategy has achieved the rebuilding targets, so SG60 and SG80 are met. However, as there is no plan to move the stock to a greater abundance than the 20% B_0, it cannot be said that the harvest strategy will be able to maintain stocks at the target level. SG100 is not reached.

1.2.1.c Harvest strategy monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Monitoring is in place that is expected to determine whether the harvest strategy is working.		

Stock is monitored through a stock assessment, which takes place every two years (alternate benchmark and update). CPCs submit monitoring data regularly, and these are sufficient for the age-structured stock assessment. Stock status and model projections assess the probability of achieving interim rebuilding targets within the specified timeframe. SG60 is met.

1.2.1.d Harvest strategy review		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The harvest strategy is periodically reviewed and improved as necessary.

The formal harvest strategy at the WCPFC level dates from 2017 and has not been subject to formal revision as yet. ISC reviews progress on stock abundance relative to targets using stock assessments and stock projections, and based on trends and projections, the harvest strategy appears to be working. Since we do not yet have a revised version of the harvest strategy, which sets objectives and decision rules beyond the second interim target, SG100 is not met for the moment.

1.2.1.f Review of alternative measures		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There has been a review of **alternative measures** to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **review** every 5 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock and they are implemented as appropriate.	There is a **review** that happens every 2 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock, and they are implemented, as appropriate.

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. Under v3.1 of the MSC Standard, this must include measures regarding unwanted catch of the target species by ghost gear.

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.

A 2009 review and survey of ghost gear fishing of target species indicated a relatively low impact for longline and purse seine gear, although ghost fishing information on these gears was limited. It is reasonable, therefore, to assume that this statement remains applicable and that the main issue would arise from lost FADs associated with purse seine fishing. This review also considered preventative measures.

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). Quantification of discards generally depends upon the presence of at-sea observers, and observer coverage has generally been increasing. Discarding of target tunas has been considered low risk to the fisheries compared to other concerns.

Incorporating estimates of discards in catch estimates and the stock assessment amounts to a review of discards generally, but the scoring guideposts require a review of “measures” to minimise discarding of the target stock rather than a review of discarding itself. Whether discards are significant enough to require a review to work out how to reduce them would need to be determined on a case-by-case basis. The nature and frequency of reviews for the effects of ghost fishing is much lower than for discards (see MSC Standard Version 3.1, SA2.4.5.1 and SA3.7.2.3). Nevertheless, while ghost fishing (e.g., lost FADs) may be significant risk to bycatch and ETP species, it is unlikely that they cause any significant mortality to the target tuna species as they either do no capture tuna (FADs) or are designed to require active fishing (purse seine nets, longline). Exceptions

for some fisheries, like gillnets, might still apply, and national reviews might be required for these gears, particularly for ghost fishing.

For the purposes of scoring this issue here, estimation of discarding and evidence of response is used to indicate a review (i.e., considering levels of discard and by extension its reduction where possible).

Pacific bluefin tuna is very valuable, and it is not likely that any catch of this species would be unused. The 2020, 2022, and 2024 stock assessments do note, however, that under greater catch restrictions and with juvenile catches, possible discarding may increase uncertainty. Otherwise, there is little incentive to discard any fish.

Because discarding of bluefin tuna has not been identified as a significant issue for these fisheries so far, this scoring issue is not scored.

All SG60 and SG80 were met, and 0 out of 3 SG100 were met.

PI 1.2.1 : 80

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P.1.2.2 Harvest control rules and tools

1.2.2.a HCRs design and application		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
HCRs are **expected to reduce the exploitation rate as the PRI is approached** and are either **generally understood** and **in place**, or **available**.	**Well-defined** HCRs **are in place** that **ensure** the exploitation rate is reduced as the PRI is approached, and are expected to keep the stock **fluctuating around** a target level consistent with (or above) MSY, or for key LTL species at levels 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**.

The harvest strategies (WCPFC 2017-02 and IATTC Resolution C-23-01) set out 'decision rules' which constitute an HCR:

- If the probability of reaching the first interim rebuilding target by 2024 is <60%, management measures should be modified to increase it to at least 60%;
- If the probability is >75%, the catch may be increased as long as the probability remains at least 70%.
- The second rebuilding target for the PBF stock size is 20% B_0, to be reached by 2034, or 10 years after reaching the initial rebuilding target, whichever is earlier, with at least 60% probability.

Therefore, there is an HCR that is well-defined and in place, even if those goals have been achieved.

However, a target consistent with MSY has not been formally incorporated into the HCR now that rebuilding to the second target is completed. There is a clear intent to rebuild to MSY, so the

expectation is that the exploitation rate will be maintained at lower levels while the stock remains below MSY, but how this will be done once the stock is likely above its PRI is not well-defined. Therefore, the relevant part of the HCR to this scoring issue is generally understood, meeting SG60, but not well-defined or in place, so it does not meet SG80.

1.2.2.b The robustness of HCRs to uncertainty		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

The stock assessment used to evaluate the HCR takes uncertainties into account via sensitivity analysis, and a range of scenarios are used to provide management advice. The key uncertainty for the HCRs flagged up by the ISC during the 2024 assessment is that the projections are more optimistic than previous projections based on high recruitment in 2016, estimated by one indicator. However, the stock assessments in 2020, 2022, and 2024 appear to confirm that rebuilding to the 20% B_0 target has been achieved. On this basis, the HCR is likely to be robust to the main uncertainties, so SG80 is met.

Although ISC highlights the uncertainty in recruitment feeding through to the 2024 projections, the issue is not explicitly taken into account in the HCR. Furthermore, in the “base case” model configuration used for advice, the Beverton and Holt stock-recruitment steepness (h) is 0.999, which is not precautionary. Steepness was highlighted by the Working Group as a significant source of uncertainty, and it is not clear that the HCR is robust to this issue. SG100 is not met.

1.2.2.c Evaluation of HCRs		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

The tools used to implement the HCR are different for WCPFC and IATTC, but have converged in the most recent management controls:

- WCPFC CMM 2024-02 (replaces 2023-02): Effort by vessels fishing for NP bluefin N of 20°N to remain below 2002-4 average levels and catch of individuals <30kg to be reduced to 50% of 2002-4 average levels (with some caveats and exceptions), but have also added specific catch limits for Japan, South Korea and Chinese Taipei separately for individuals <30kg and >30kg.
- IATTC C-24-02: combined biennial total catch limit of 12,585t for 2025-26 (with 10,763t allocated to Mexico and 1,822t to USA) and similarly 6973t for the period 2023-24. CPCs are required to reduce the proportion of juveniles (<30kg) in the catch ‘towards 50%’.

It should be possible to evaluate the performance of these catch limits, how well they are implemented, and whether they are effective, but this has not been achieved yet. These controls are an improvement on the previous effort limits.

The most recent stock assessment and projections based on a range of scenarios suggest that recent exploitation rates have been low and the stock is now rebuilt to 20% B_0, ahead of schedule. Therefore, available evidence suggests that the tools in use are achieving appropriate exploitation rates to allow rebuilding. SG80 is met. However, as there is currently no clear intent to rebuild the stock further and concern has been expressed for unintended consequences of catch limits, there is some doubt as to the appropriateness of the current tools, so the SG100 level is not reached.

All SG60 were met, and 2 out of 3 SG80 were met.

PI 1.2.2 : 75

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P.1.2.3 Information / monitoring

1.2.3.a Range of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

The stock assessment and management assume that Pacific bluefin is a single stock, and this is supported by what is known about spawning areas, as well as by the available genetic and tagging information.

In terms of stock productivity, there has been extensive work on age and growth, summarised in the stock assessments, as well as research into reproductive biology (size and age at maturity, fecundity at size, spawning frequency). There has also been work on how best to estimate natural mortality at age (considering different types of tagging data and comparing with the other bluefin species). Recruitment is estimated within the stock assessment, even if the stock recruitment relationship is effectively undefined.

In terms of fisheries, there are five main countries which fish Pacific bluefin: Japan (the majority of the catch), Mexico, USA, Korea and Taiwan. There is consistent catch data from all these countries back to 1952 (the starting year for the stock assessment) but also some records as far back as 1804 from Japan and around 1900 from the USA. Catch is characterised by gear and location, and catch size composition data are also available.

There is clearly sufficient data to support an age-structured stock assessment. The stock assessment model can be used as an input to projections, which are able to estimate the reference points and associated probabilities as required by the harvest strategy. Therefore, SG60 and SG80 are met.

In terms of a wider range of information not directly relevant to the harvest strategy, North Pacific bluefin is not as advanced as the other two species of bluefin, where there is very extensive information available. For example, southern bluefin includes genetic information (close kin mark-recapture; CKMR), which is used as a fishery-independent abundance index, and Atlantic bluefin has reconstructed catch time series back to the 16th century, as well as extensive environmental information. Nevertheless, ISC is working on collecting the data required for CKMR analysis, and there is also significant environmental information available for the North Pacific. Because there is a comprehensive range of information available, SG100 is met.

1.2.3.b Monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Stock abundance and UoA removals are monitored and **at least 1 indicator** is available and monitored with sufficient frequency to support the harvest strategy.	Stock abundance and UoA removals are **regularly monitored at a level of accuracy and coverage consistent with the harvest strategy**, and **1 or more indicators** are available and monitored with sufficient frequency to support the harvest strategy.	**All information** required by the harvest strategy is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent **uncertainties** in the information (data) and the robustness of assessment and management in dealing with this uncertainty.

ISC report catch data from all the main fisheries going back to 1952. There is also catch at size data going back to the 1960s for the Japanese fleet. The stock assessment defines 25 different fisheries, characterised by flag state, gear, and area, and uses five CPUE-based abundance/recruitment indices in the base case model (and one further recruitment index in a sensitivity run). Because stock abundance and removals are well monitored, SG60 is met. In addition, datasets are updated annually by ISC prior to plenary, sufficient for a biennial stock assessment to support the HCR, so SG80 is also met.

The scientific working group flag up some unresolved uncertainties in data, around the abundance indices (changes in catchability due to recent changes in regulation) and the potential for discarding due to increased recruitment combined with tighter regulation. While uncertainties are broadly understood, because it is not clear that the assessment and management are robust to these uncertainties, SG100 is not met.

1.2.3.c Comprehensiveness of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	There is good information on all other fishery removals from the stock.	

The stock assessment makes no mention of unreported catch as an issue; some recreational fishing is incorporated (from the USA). The most recent stock assessment does note, however, that under greater catch restrictions and with juvenile catches, possible discarding may increase uncertainty. However, as far as we can tell, information on all significant removals is available to ISC, so SG80 is met.

All SG60 and SG80 were met, and 1 out of 2 SG100 were met.

PI 1.2.3 : 90

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P.1.2.4 Assessment of stock status

1.2.4.a Appropriateness of assessment to stock under consideration		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment is appropriate for the stock and for the harvest strategy.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.

The 2024 benchmark stock assessment takes into account the biology of the species (e.g., age-based growth, maturity, and natural mortality schedules based on research) and the nature of the fishery – abundance indices are specific to particular fisheries with flag, gear, area, (sometimes) season, and selectivity characteristics. It provides a basis for stock projections, which inform the application of the HCR. Because the stock assessment was appropriate for the stock and HCR and takes into account the major features of the biology of the species and fisheries, SG100 is met.

1.2.4.b Assessment approach		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.	

The interim rebuilding targets are treated by the stock assessment as reference points, and these are estimated, along with the probability of them being achieved by the specified date. The stock assessment also estimates stock status relative to a range of commonly used reference points based on yield and spawning biomass per recruit. Given the lack of a suitable stock recruitment relationship, these are appropriate to the stock if used in a precautionary way and can be estimated, so SG60 and SG80 are met.

1.2.4.c Uncertainty in the assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The assessment **identifies major sources** of uncertainty.	The assessment **takes uncertainty into account**.	The assessment evaluates stock status relative to reference points in a **probabilistic** way.

The assessment (or at least, projections based on the assessment) estimates the probability of reaching the interim rebuilding targets in the specified year, according to the harvest strategy. Uncertainties in these projections are discussed and highlighted, with the 2024 assessment reporting projections for the range of plausible scenarios. This takes uncertainty into account, so SG80 is met.

For this, they use the base case model with projections run externally to the model framework, but they also report projection results from other models that were evaluated, and the management advice is robust to these alternative assumptions. The second rebuilding target reference point is also set probabilistically. SG100 is met.

1.2.4.d Evaluation of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.

The stock assessment process involves two working group meetings: one to discuss data, best available science, and the general form of the model, and the second to develop, evaluate, and finalize the model. This second meeting involves consideration of different model configurations, parameter inputs, etc. A peer review report of the stock assessment process at ISC noted that these working group meetings performed the expected actions, despite limited time. There is an emphasis on using the best available science, and the current work of ISC on CKMR data demonstrates that they are able to take on board new approaches as they arise. SG100 is met.

1.2.4.e Peer review of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment of stock status is subject to peer review.	The assessment has been **internally and externally peer** reviewed.

The PBFWG included scientists from the main bluefin fishing countries. Datasets and other scientific information, as well as different model options, were presented, discussed, and evaluated during the working group meetings. ISC reviews the reports of each Working Group, including the PBFWG, at plenary. The internal peer review system is sufficient for SG80 to be met.

As far as we are aware, no external peer review has been conducted on the 2024 stock assessment, although the ISC stock assessment process was reviewed (i.e., planning of meetings, organisational structure, etc) in 2019. Carruthers (2013) reviewed the 2013 stock assessment, but no similar review has been found for 2018, 2020, 2022, or 2024, so SG100 is not met.

All SG60 and SG80 were met, and 3 out of 4 SG100 were met.

PI 1.2.4 : 95

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Western Pacific Bigeye

1.1 Outcome

P.1.1.1 Stock Status

1.1.1.a Stock status relative to recruitment impairment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
It is **likely** that the stock is above the point of recruitment impairment (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.

SPC conducted a new stock assessment for WP bigeye in 2023. A structural uncertainty grid was generated from 54 model variants, equally weighted (WCPFC-SC19 2023). The estimates of uncertainty in reference point ratios combined parameter estimate uncertainty, as well as structural uncertainty across the whole grid, so error bars are not directly comparable to previous assessments, although the stock assessment report notes that this change did not influence the perception of stock status.

Median depletion ($B_{2018-2021}$ / B_0) from the grid estimates is 35% (80% CIs 30%-40%). None of the grid models estimate depletion below the LRP of 20%, used here as the PRI. The biomass is therefore estimated to be above this level with high confidence. SG100 is met.

1.1.1.b Stock status in relation to achievement of maximum sustainable yield (MSY)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

According to the 2023 stock assessment, median $F_{2018-2021}/F_{MSY}$ is estimated from the structural uncertainty grid at 59% (80% CI 46%-74%). The time trajectory suggests that although F may have slightly exceeded F_{MSY} in one year, it has generally speaking remained well below. Thus, B is likely to have remained above B_{MSY}, and is currently estimated at ~2 B_{MSY} (see Figure 60 in Day et al. 2023). SG100 is met.

All SG60, SG80 and SG100 were met.

PI 1.1.1 : 100

References

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1.2 Harvest Strategy (Management)

P.1.2.1 Harvest Strategy

1.2.1.a Harvest strategy design		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **expected** to achieve stock management objectives reflected in PI 1.1.1/PI 1.1.1A 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/PI 1.1.1A 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/PI 1.1.1A SG80.

The general objective of the WCPFC is to maintain populations of tunas and tuna-like fishes at levels that will permit maximum sustainable yield (MSY). A specific commitment to long-term sustainable fisheries management was adopted at the Western and Central Pacific Fisheries Commission in 2014 (CMM 2014-06) and revised in 2022 (CMM 2022-03). At its 2015 meeting, the WCPFC adopted a

workplan for developing and implementing a harvest strategy approach that includes TRP, HCR, and other elements. The workplan has been regularly reviewed and adjusted as needed (2016-2023).

The most recent harvest strategy for WP yellowfin and bigeye (CMM 2023-01, in effect from 16 February 2024) does not change the management objective from previous CMMs – i.e. that the spawning depletion ratio ($SB/SBF_{=0}$) should be maintained at or above the average for 2012-2015. This objective is intended to be an interim, pending agreement on a TRP, although it has been in place for several years. According to the stock assessment (Day et al. 2023), the objective is being met.

Management measures in 2023-01 include a 1.5-month ban on FAD sets in EEZs and high seas between 20°N and 20°S, plus one additional month to be selected by each CCM (with some exceptions), a limit on active instrumented FADs of 350 at any given moment, purse seine catch/effort limits in zone and effort limits in the high seas, capacity limits on large purse seiners and longliners (except for SIDS and Indonesia) and longline catch limits for bigeye only.

The harvest strategy contained in CMM 2023-01 has essentially been in place since 2013. It has, however, been renewed several times as attempts continue to put in place a formal and responsive harvest strategy and harvest control rule for the tropical tuna stocks, as per the requirements of CMM 2014-06 (previously) and CMM 2022-03 (currently).

As of early 2025, target reference points have not been agreed upon, though proposed MSY-based reference points have been provided in the assessment report. It is therefore hard to argue that the harvest strategy is 'responsive to the state of the stock' with the elements 'working together'; it is rather an ad hoc series of measures targeted more at bigeye. Nevertheless, since it is achieving stock management objectives (see 1.1.1), SG60 is met, but SG80 is not met.

1.2.1.b Harvest strategy evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **likely** to work based on prior experience or plausible argument.	The harvest strategy has been **tested** and is expected to meet the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80 or there is evidence that the harvest strategy is achieving its objectives reflected in PI 1.1.1/ PI 1.1.1A SG80.	The performance of the harvest strategy has been **evaluated** and evidence exists to show that it is achieving the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80, including being clearly able to maintain stocks at target levels.

The stock assessment concludes that the management objective from CMM 2023-01 is being met, and also that the stock is well above the MSY level, with F well below the MSY level, as it has been throughout the time series with one exception.

Projections conducted by SPC based on the 2023 stock assessment were used to evaluate the impact of CMM 2021-01 (SPC-OFP 2024). Bearing in mind that the harvest strategy covers both yellowfin and bigeye tunas, for yellowfin the conclusion was that the harvest strategy is not likely to continue to achieve the current management objectives (spawner depletion at 2012-15 levels) across a 30-year timeframe. The projections estimate that under the current strategy, stock depletion would stabilize in the range 34%-41% B_0. Median F across all scenarios is estimated to remain well below F_{MSY}, with a low risk of exceeding F_{MSY}. The risk of the stock falling below the LRP also remains low.

For this SI, MSC defines 'stock management objectives' in MSY terms (i.e. in relation to 1.1.1b SG80) rather than in relation to the stated objective of the harvest strategy. Since the various management elements of 2012-01 (and its successor, 2023-01) appear to be able to maintain the stock consistent with MSY, SG80 is met. SG100 requires an MSE-type evaluation of the harvest strategy, which is part

of the ongoing work on a tropical tuna management procedure, but which is not yet completed, so SG100 is not met.

1.2.1.c Harvest strategy monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Monitoring is in place that is expected to determine whether the harvest strategy is working.		

There is a stock assessment by SPC every ~3 years (for bigeye in 2014, 2017, 2020, and 2023) with an annual review of stock indicators and trends in intervening years. The different parts of the strategy include reducing capacity overall, increasing the mean size (by restrictions on FADs), and reducing catches from the main fisheries using effort controls and limiting catches by nations. Data are collected to estimate these quantities. Monitoring is therefore adequate to determine whether the harvest strategy is working. SG60 is met.

1.2.1.d Harvest strategy review		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The harvest strategy is periodically reviewed and improved as necessary.

According to CMM 22-03 (superseding CMM 14-06), a formal harvest strategy for bigeye, yellowfin and skipjack should be put in place by WCPFC, with provision for periodic review. WCPFC has not yet put in place a management procedure for the bigeye or yellowfin. The current work plan (presented in WCPFC20 Outcomes 2024, Attachment 4) sets an end date of 2026 for the Commission to adopt a management procedure for bigeye and yellowfin (i.e. WCPFC 23).

The existing harvest strategy for yellowfin and bigeye (which also remains in force for skipjack, providing the tools to implement the management procedure), is set out in CMM 2023-01. This has been more or less the same for several years. While there is a regular evaluation of CMM 2023-01 as well as other measures, there has not been action by the WCPFC to update the Harvest Strategy. SG100 is not met.

1.2.1.f Review of alternative measures		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There has been a review of **alternative measures** to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **review** every 5 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock and they are implemented as appropriate.	There is a **review** that happens every 2 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock, and they are implemented, as appropriate.

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. Under v3.1 of the MSC Standard, this must include measures regarding unwanted catch of the target species by ghost gear.

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.

A 2009 review and survey of ghost gear fishing of target species indicated a relatively low impact for longline and purse seine gear, although ghost fishing information on these gears was limited. It is reasonable, therefore, to assume that this statement remains applicable and that the main issue would arise from lost FADs associated with purse seine fishing. This review also considered preventative measures.

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). Quantification of discards generally depends upon the presence of at-sea observers, and observer coverage has generally been increasing. Discarding of target tunas has been considered low risk to the fisheries compared to other concerns.

Incorporating estimates of discards in catch estimates and the stock assessment amounts to a review of discards generally, but the scoring guideposts require a review of “measures” to minimise discarding of the target stock rather than a review of discarding itself. Whether discards are significant enough to require a review to work out how to reduce them would need to be determined on a case-by-case basis. The nature and frequency of reviews for the effects of ghost fishing is much lower than for discards (see MSC Standard Version 3.1, SA2.4.5.1 and SA3.7.2.3). Nevertheless, while ghost fishing (e.g., lost FADs) may be significant risk to bycatch and ETP species, it is unlikely that they cause any significant mortality to the target tuna species as they either do no capture tuna (FADs) or are designed to require active fishing (purse seine nets, longline). Exceptions for some fisheries, like gillnets, might still apply, and national reviews might be required for these gears, particularly for ghost fishing.

For the purposes of scoring this issue here, estimation of discarding and evidence of response is used to indicate a review (i.e., considering levels of discard and by extension its reduction where possible).

In the case of tropical tuna fisheries using FADs, a joint meeting of tRFMOs in 2019 reviewed the science and advice for mitigating FAD impacts, including reducing the mortality of the juvenile tunas. This meeting considered research and technological findings that could, help, inter alia, to inform alternative management measures to reduce juvenile bigeye and yellowfin tuna mortality: FAD monitoring and tracking, to minimise the potential for lost or abandoned FADs to be fished by other vessels; the use of acoustic discrimination techniques for juvenile tuna species identification. The meeting also identified the need to investigate the effects of depth, behaviour, and selectivity of purse seine nets, which could inform alternative measures for reducing unwanted juvenile bigeye tuna mortality. Consideration of the impact of FADs on juvenile tunas and recommendations about specific mitigation measures to reduce those impacts are expected to be addressed in a follow-up meeting, which has not yet taken place. It should be noted that the capture of juvenile bigeye and yellowfin are not unwanted in the sense that they would be discarded, only their capture may constrain the skipjack fishery as well as cause growth overfishing and impact the spawning stock and other gears, such as longline. Therefore, this effectively is an attempt to change the joint fishery selectivity, not reduce unwanted catch.

The main concern with discards of tuna appears to apply to the purse seine fleet. WCPFC has in place CMM 2009-02, which aims to limit discard mortality and requires reporting of discard events. In addition, recent CMMs on tropical tunas (2023-01 and previous iterations) aim to reduce undesirable catch of juvenile bigeye through control of effort on FADs and require purse seine to retain yellowfin, bigeye, and skipjack on board for landing. On this basis, discarding is clearly subject to review, and controls are being implemented, meeting SG80. While conservation measures are regularly examined every two years, it is not clear that these measures to address unwanted target stock catches are reviewed frequently enough to meet SG100.

All SG60 were met, and 2 out of 3 SG80 were met.

PI 1.2.1 : 75

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P.1.2.2 Harvest control rules and tools

1.2.2.a HCRs design and application		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
HCRs are **expected to reduce the exploitation rate as the PRI is approached** and are either **generally understood** and **in place**, or **available**.	**Well-defined** HCRs **are in place** that **ensure** the exploitation rate is reduced as the PRI is approached, and are expected to keep the stock **fluctuating around** a target level consistent with (or above) MSY, or for key LTL species at levels 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**.

At SG60, MSC allows a harvest control rule to be 'available' rather than 'in place' if certain requirements summarised below are met (see SE2.2.3-2.2.7 for details). In scoring issue (a) at the SG60 level, the team shall accept "available" HCRs instead of HCRs that are "in place" if:

- 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 B_{MSY} within the next 5 years, and
- "Generally understood" or "well-defined" HCRs are in place for some other UoAs that are under the control of the same management body, and of a similar size and scale as the UoA.

The current harvest strategy (CMM 2023-01 and previous iterations) does not have a well-defined HCR. It has a series of measures (restrictions on purse seine effort, FAD purse seine sets, longline

catch limits, and capacity restrictions) which are intended to restrain catches of bigeye such that the biomass is maintained at recent (2012-15) levels.

For WCPO bigeye, the first requirement is met because the stock biomass has not previously been reduced below the MSY level, according to the 2023 stock assessment which estimates a low fishing mortality and is not predicting a decline in abundance (Day et al. 2023), and an HCR as 'available' through CMM 2022-03 (replacing CMM 2014-06). Furthermore, a well-defined management procedure (HCR) has been put in place for skipjack, which is of similar size and scale to the bigeye fishery, by the WCPFC (CMM 2022-01).

The stock assessment estimates that F is well below F_{MSY}, with a low probability of F exceeding F_{MSY}; suggesting also a low probability that B will fall below B_{MSY} in the short term. 30-year projections are highly uncertain with respect to bigeye because of different hypotheses about recruitment, but F is projected to exceed F_{MSY} only under a combination of the more pessimistic fishing scenarios with the lower recruitment scenario (SFP-OFP 2023a). Overall, however, it is not likely that the biomass will decline below the MSY level in the next 5 years, so the requirements for an HCR to be 'available' at SG60 are met.

SG60 requires that management can be expected to reduce the exploitation rate as the PRI is approached. Management of the tropical tuna stocks by WCPFC has gradually been tightened up in recent years. Bigeye was considered overfished from 2011-2017, and evidence from the stock assessment (trajectories from time-dynamic Majuro / Kobe plots, Figure 69 in Day et al. 2023) suggests that the management measures which have been put in place since 2011 have had the effect of reducing F on bigeye. For yellowfin, the decline in stock biomass across the time series has likewise stabilised (see, for example, Figure 45 in Magnusson et al. 2023). This provides some evidence that the current harvest strategy can reduce the exploitation rate of bigeye. SG60 is met. SG80 requires a well-defined HCR, which is not yet in place.

We remain concerned that although strictly the MSC requirements may be met at the time of writing, there has been slow progress with the development of harvest strategies for WCPFC stocks since the commitment was made (CMM 2014-06 was agreed) and strict timelines are not being observed. The workplan for the implementation of CMM 2014-06 has been systematically revised, with CPCs seemingly unwilling to apply the original timetable.

MSC-certified fisheries with condition milestones for the achievement of a formal harvest strategy for this stock should, based on MSC procedures, be first scored at audit as 'behind target' and subsequently (the following year) have their certificates suspended if progress has not been made. We note, however, that a variation request was granted in 2018 to extend the timeline for meeting the condition on this performance indicator, and a new version of the MSC requirements will specifically address the problems encountered by international fisheries. That said, the fishery has since had the conditions surrounding this SI further extended to 2029.

1.2.2.b The robustness of HCRs to uncertainty		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

Since there is no well-defined HCR in place, it cannot be robust to the main uncertainties. SG80 is not met.

1.2.2.c Evaluation of HCRs		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

Under SE2.2.6 and 2.2.7, to conclude that 'available' HCRs are 'effective' (SG60), MSC requires evidence of i) the HCRs are effectively used in other stocks or fisheries under the same management body; or ii) a formal agreement or framework with trigger levels which will require the development of a well-defined HCR. It also requires consideration of current exploitation rates in relation to biological reference points, the agreed trigger level and this is consistent with long-term sustainable harvest.

The tools by which management is implemented are as follows:

- temporal / spatial limits on purse seine setting on FADs
- restrictions on purse seine effort (days)
- purse seine required to retain all tuna catch
- longline catch limits for bigeye
- various limits on increasing fishing capacity

The tools by which management is implemented are as follows:

- temporal / spatial limits on purse seine setting on FADs
- restrictions on purse seine effort (days)
- purse seine required to retain all tuna catch
- longline catch limits for bigeye
- various limits on increasing fishing capacity

CMM 2023-01 sets bigeye catch limits for the longline fishery, as well as purse seine effort limits for both EEZs and high seas, and also restricts FAD use with an overall limit on active FADs, as well as annual FAD closures.

The catch time series in the 2023 stock assessment runs to 2021; the harvest strategy has only been in place since 2014, and is incremental, so it is not possible to determine the full impact. However, the stock assessment estimates that the probabilities of $F<F_{MSY}$ and B<LRP are both low, and the increasing trajectory of F and stock depletion has stabilised since 2010. Management objectives (restricting depletion estimates to 2012-15 levels) are also being met.

Overall, SG60 is met because there is some evidence from the most recent stock assessments that fishing mortality is being limited to appropriate levels. SG80 requires progress on the harvest strategy (under CMM 2022-03) such that it is clearer how management tools are likely to be effective in maintaining a stable biomass at or above reference levels or rebuilding when required to. SG80 is not met.

All SG60 were met, but no SG80 or SG100.

PI 1.2.2 : 60

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P.1.2.3 Information / monitoring

1.2.3.a Range of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

A 2024 review of the scientific data available to WCPFC (and previous iterations of this document) notes that there have been considerable improvements in the last few years. In 2024, all CCMs provided aggregate catch and effort estimates for 2023 by the deadline (30 April), and the quality of these data has also improved (fewer gaps). Operational-level data is provided by most fleets, with the main gap being low coverage of the Indonesia and Vietnam fleets. Purse seine fisheries are required to have 100% observer coverage. Although not all achieve it, observer coverage is high, providing detailed operational-level data and information on catch proportions by species, etc.

WCPFC has provided technical assistance to Vietnam, Indonesia, and the Philippines to address data issues, although some problems remain for these CCMs. Work is also underway to improve historical data. The key data gaps identified in the data availability report generally relate to species other than the main tuna species under WCPFC management – e.g., sharks, species that are discarded, and species lacking good length/weight conversion factors.

Sufficient information (on stock structure, stock productivity, fleet composition) is available for bigeye to monitor and assess stock status as demonstrated by the recent stock assessment, including aggregate and operational catch and effort data, historical catch data, size-frequency data, and biological information (size at age, tagging). This is sufficient to support the harvest strategy, which requires information on status, fleets, and stock distribution, including information to evaluate alternative management measures as required. SG80 is met.

Concerning SG100, while the data are comprehensive, there still remain some issues that could apply to bigeye (e.g., longline observer coverage, limited data from some countries). The stock assessment notes that data inputs are improving all the time, although uncertainties remain about the biology of the species, the definition of stock boundaries in the Pacific Ocean, as well as age and growth. The previous stock assessment noted uncertainties around bigeye age and growth, and environmental drivers of recruitment (the latter remains an issue for stock assessment projections). SG100 is not met in full.

1.2.3.b Monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Stock abundance and UoA removals are monitored and **at least 1 indicator** is available and monitored with sufficient frequency to support the harvest strategy.	Stock abundance and UoA removals are **regularly monitored at a level of accuracy and coverage consistent with the harvest strategy**, and **1 or more indicators** are available and monitored with sufficient frequency to support the harvest strategy.	**All information** required by the harvest strategy is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent **uncertainties** in the information (data) and the robustness of assessment and management in dealing with this uncertainty.

Catch, effort, and stock status are monitored at a level that is sufficient for the current harvest strategy, meeting SG60 and SG80. Stock status indicators are updated each year. The Scientific Committee noted from the results that considerable uncertainty still exists around growth, mortality, interpretation (weighting) of the size composition, and levels of depletion by area. The full stock assessments are carried out every 3 years or so, and the data collected with a precision and frequency more than sufficient to support this process. However, uncertainty in the biological and other information available for stock assessment will have an impact in terms of the ongoing development of the harvest strategy. For all information required by an HCR to be monitored with a high degree of certainty, additional research on processes that affect size-at-age, distribution, and mortality of the stock would be required. On this basis, SG100 is not met.

1.2.3.c Comprehensiveness of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	There is good information on all other fishery removals from the stock.	

All CCMs submit aggregate catch data by the WCPFC deadline, and most also submit operational data. Some of these data sets are of higher quality than others. Catches of tuna are measured and monitored well enough for stock assessment and the harvest strategy. Although monitoring of catches in some areas is far from perfect, these do not pose an unacceptable risk to the harvest strategy. There are several ongoing initiatives to strengthen data collection of member states. Overall, this meets SG80.

All SG60 and SG80 were met, and 0 out of 2 SG100 were met.

PI 1.2.3 : 80

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P.1.2.4 Assessment of stock status

1.2.4.a Appropriateness of assessment to stock under consideration		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment is appropriate for the stock and for the harvest strategy.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.

The most recent assessment of bigeye tuna in the WCPO was conducted in 2023 using the Multifan-CL model and software. The bigeye tuna model is age-structured (40 quarterly age classes) and spatially structured (9 regions). The catch, effort, size composition, and tagging data used in the model are classified by 41 fisheries (including index fisheries) and quarterly time steps from 1952 to 2021. The assessment included a range of model options and sensitivities that were applied to investigate key structural assumptions and sources of uncertainty in the assessment. The model has and continues to be developed over the years with frequent supporting analysis and research, and workshops. SG80 is met. The model describes the population dynamics in a lot of detail and has been adapted to account for known biology of bigeye. SG100 is met.

1.2.4.b Assessment approach		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.	

All stock assessments report spawner biomass and fishing mortality relative to a range of reference points, which can be estimated (although some with more certainty than others), including MSY reference points (F_{MSY}, B_{MSY}) and depletion-based reference points (20% B_0). SG80 is met.

1.2.4.c Uncertainty in the assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The assessment **identifies major sources** of uncertainty.	The assessment **takes uncertainty into account**.	The assessment evaluates stock status relative to reference points in a **probabilistic** way.

All WCPFC stock assessments attempt a probabilistic approach, which is subsequently used, where there is sufficient information, to give management advice in the form of risk (projection tables and Kobe plots). Therefore, there is an argument that all assessments, where this is achieved, meet SG100. However, we have applied judgement whether the probabilities are really being estimated and whether probabilities are reported in a form suitable for decision making, such as in risk tables.

The assessment evaluates uncertainty in terms of alternative model structures and addresses uncertainty in data and observations, with critical uncertainties represented across the sensitivity analyses. These were used to construct an uncertainty grid based on 54 alternative models (all combinations of sensitivities). This meets SG80.

For the first time in 2023, the parameter (estimation) uncertainty is estimated for the key management reference ratios (B_{recent} / B_0 and F_{recent} / F_{MSY}); this is combined with the structural uncertainty (range of values from across the uncertainty grid) to try and obtain a fuller picture of the uncertainty in the stock status estimators. This represents best practice in dealing with uncertainties, so SG100 is met.

1.2.4.d Evaluation of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.

The stock assessment process is rigorous, including reviews of data and models through pre-assessment workshops. Similar to previous assessments, the 2023 assessment tested a range of alternative model structures and inputs, different approaches to treating catch, CPUE, size, and tagging data, and estimating natural mortality and selectivity, a different regional structure, additional analyses for ensuring model convergence, and additional estimates of uncertainty in

reference ratios. Sensitivities were evaluated for a range of assumptions, including steepness, tag mixing period, and size and age data weighting. On this basis, it is reasonable to say that alternative hypotheses and approaches have been rigorously explored.

Despite some concerns expressed by the SC (e.g. regarding sensitivity to initial conditions), the assessment provides results that appear to be robust to general determinations of stock status. The set of hypotheses that have been considered appear to cover all likely possibilities. SG100 is met.

1.2.4.e Peer review of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment of stock status is subject to peer review.	The assessment has been **internally and externally peer** reviewed.

The assessment is subject to internal peer review through the WCPFC SC; preparatory workshops are also held before the stock assessment takes place to review data and the approach. An external peer review was completed for the 2011 stock assessment, which was published in 2012, but there has been no specific external review for bigeye since then, as far as we are aware. The 2023 assessment was also not externally reviewed. As such, the SG80 level is reached, while the SG100 level is not.

All SG60 and SG80 were met, and 3 out of 4 SG100 were met.

PI 1.2.4 : 95

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Western Pacific Yellowfin

1.1 Outcome

P.1.1.1 Stock Status

1.1.1.a Stock status relative to recruitment impairment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
It is **likely** that the stock is above the point of recruitment impairment (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.

SPC conducted a new stock assessment for WP yellowfin in 2023. A structural uncertainty grid was generated from 54 model variants, equally weighted (WCPFC-SC19 2023). The estimates of uncertainty in reference point ratios included parameter estimate uncertainty as well as structural uncertainty across the whole grid, so error bars are not directly comparable to previous assessments, although the stock assessment report notes that this change did not influence the perception of stock status. The diagnostic case model estimates a lower B/B_0 than the diagnostic case for the previous assessment (Vincent et al. 2020), which appears to be a function of an increased estimate of $B_{0,}$ more than a decreased estimate of B. A stepwise introduction and analysis of the changes between this and the previous assessment model suggests that the key element driving this difference is a change in the way that natural mortality is estimated within the model, which was based on various methodological reviews and good practice recommendations. Adjustments to spatial structure and tagging data analysis also contributed.

Median depletion ($B_{2018\text{-}2021}/B_0$) from the grid estimates is 47% (80%CIs 42%-52%). None of the grid models put the estimate of depletion below the LRP of 20%. Taking the MSC default proxy value for the PRI at $20\%B_0$, (i.e. the LRP), the biomass is therefore estimated to be above this level with high confidence. SG100 is met.

1.1.1.b Stock status in relation to achievement of maximum sustainable yield (MSY)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

According to the 2023 stock assessment, median $F_{2018\text{-}2021}/F_{MSY}$ is estimated from the structural uncertainty grid to be 50% (80% CIs 42%-61%). The time trajectory suggests that F has never approached or exceeded F_{MSY}. Thus, B is likely to have remained above any estimate of B_{MSY}, and is currently above the precautionary 40% B_0 proxy MSY level (see Figure 65 in Magnusson et al. 2023). SG100 is met.

All SG60, SG80 and SG100 were met.

PI 1.1.1 : 100

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1.2 Harvest Strategy (Management)

P.1.2.1 Harvest Strategy

1.2.1.a Harvest strategy design		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **expected** to achieve stock management objectives reflected in PI 1.1.1/PI 1.1.1A 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/PI 1.1.1A 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/PI 1.1.1A SG80.

The general objective of the WCPFC is to maintain populations of tunas and tuna-like fishes at levels that will permit maximum sustainable yield (MSY). A specific commitment to long-term sustainable fisheries management was adopted at the Western and Central Pacific Fisheries Commission in 2014

(CMM 2014-06) and revised in 2022 (CMM 2022-03). At its 2015 meeting, the WCPFC adopted a workplan for developing and implementing a harvest strategy approach that includes TRP, HCR, and other elements. The workplan has been regularly reviewed and adjusted as needed (2016-2023).

The most recent harvest strategy for WP yellowfin and bigeye (CMM 2023-01, in effect from 16 February 2024) does not change the management objective from previous CMMs – i.e. that the spawning depletion ratio ($SB/SBF_{=0}$) should be maintained at or above the average for 2012-2015. This objective is intended to be an interim, pending agreement on a TRP, although it has been in place for several years. According to the stock assessment (Magnusson et al. 2023), the objective is being met.

Management measures in 2023-01 include a 1.5-month ban on FAD sets in EEZs and high seas between 20°N and 20°S, plus one additional month to be selected by each CCM (with some exceptions), a limit on active instrumented FADs of 350 at any given moment, purse seine catch/effort limits in zone and effort limits in the high seas, capacity limits on large purse seiners and longliners (except for SIDS and Indonesia) and longline catch limits for bigeye only.

The harvest strategy contained in CMM 2023-01 has essentially been in place since 2013. It has, however, been renewed several times as attempts continue to put in place a formal and responsive harvest strategy and harvest control rule for the tropical tuna stocks, as per the requirements of CMM 2014-06 (previously) and CMM 2022-03 (currently).

As of early 2025, target reference points have not been agreed upon, though proposed MSY-based reference points have been provided in the assessment report. It is therefore hard to argue that the harvest strategy is 'responsive to the state of the stock' with the elements 'working together'; it is rather an ad hoc series of measures targeted more at bigeye. Nevertheless, since it is achieving stock management objectives (see 1.1.1), SG60 is met, but SG80 is not met.

1.2.1.b Harvest strategy evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **likely** to work based on prior experience or plausible argument.	The harvest strategy has been **tested** and is expected to meet the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80 or there is evidence that the harvest strategy is achieving its objectives reflected in PI 1.1.1/ PI 1.1.1A SG80.	The performance of the harvest strategy has been **evaluated** and evidence exists to show that it is achieving the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80, including being clearly able to maintain stocks at target levels.

The stock assessment (Magnusson et al. 2023) concludes that the management objective from CMM 2023-01 is being met, and also that the stock is well above the MSY level, with F well below the MSY level, as it has been throughout the time series.

Projections conducted by SPC based on the 2023 stock assessment were used to evaluate the impact of CMM 2021-01 (SPC-OFP 2024). For yellowfin tuna, these conclude that the harvest strategy is not likely to continue to achieve the current management objectives (spawner depletion at 2012-15 levels) across a 30-year timeframe. The projections estimate that under the current strategy, stock depletion would stabilize in the range 34%-41% B_0. Median F across all scenarios is estimated to remain well below F_{MSY}, with a low risk of exceeding F_{MSY}. The risk of the stock falling below the LRP also remains low.

For this SI, MSC defines 'stock management objectives' in MSY terms (i.e. in relation to 1.1.1b SG80) rather than in relation to the stated objective of the harvest strategy. Since the various management elements of 2012-01 (and its successor, 2023-01) appear to be able to maintain the stock consistent with MSY, SG80 is met. SG100 requires an MSE-type evaluation of the harvest strategy, which is part

of the ongoing work on a tropical tuna management procedure, but which is not yet completed, so SG100 is not met.

1.2.1.c Harvest strategy monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Monitoring is in place that is expected to determine whether the harvest strategy is working.		

There is a stock assessment by SPC every ~3 years (for yellowfin in 2014, 2017, 2020, and 2023) with an annual review of stock indicators and trends in intervening years. The different parts of the strategy include reducing capacity overall, increasing the mean size (by restrictions on FADs), and reducing catches from the main fisheries using effort controls and limiting catches by nations. Data are collected to estimate these quantities. Monitoring is therefore adequate to determine whether the harvest strategy is working. SG60 is met.

1.2.1.d Harvest strategy review		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The harvest strategy is periodically reviewed and improved as necessary.

According to CMM 22-03 (superseding CMM 14-06), a formal harvest strategy for bigeye, yellowfin and skipjack should be put in place by WCPFC, with provision for periodic review. WCPFC has not yet put in place a management procedure for the bigeye or yellowfin. The current work plan (presented in WCPFC20 Outcomes 2024, Attachment 4) sets an end date of 2026 for the Commission to adopt a management procedure for bigeye and yellowfin (i.e. WCPFC 23).

The existing harvest strategy for yellowfin and bigeye (which also remains in force for skipjack, providing the tools to implement the management procedure), is set out in CMM 2023-01. This has been more or less the same for several years. While there is a regular evaluation of CMM 2023-01 as well as other measures, there has not been action by the WCPFC to update the Harvest Strategy. SG100 is not met.

1.2.1.f Review of alternative measures		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There has been a review of **alternative measures** to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **review** every 5 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock and they are implemented as appropriate.	There is a **review** that happens every 2 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock, and they are implemented, as appropriate.

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. Under v3.1 of the MSC Standard, this must include measures regarding unwanted catch of the target species by ghost gear.

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.

A 2009 review and survey of ghost gear fishing of target species indicated a relatively low impact for longline and purse seine gear, although ghost fishing information on these gears was limited. It is reasonable, therefore, to assume that this statement remains applicable and that the main issue would arise from lost FADs associated with purse seine fishing. This review also considered preventative measures.

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). Quantification of discards generally depends upon the presence of at-sea observers, and observer coverage has generally been increasing. Discarding of target tunas has been considered low risk to the fisheries compared to other concerns.

Incorporating estimates of discards in catch estimates and the stock assessment amounts to a review of discards generally, but the scoring guideposts require a review of “measures” to minimise discarding of the target stock rather than a review of discarding itself. Whether discards are significant enough to require a review to work out how to reduce them would need to be determined on a case-by-case basis. The nature and frequency of reviews for the effects of ghost fishing is much lower than for discards (see MSC Standard Version 3.1, SA2.4.5.1 and SA3.7.2.3). Nevertheless, while ghost fishing (e.g., lost FADs) may be significant risk to bycatch and ETP species, it is unlikely that they cause any significant mortality to the target tuna species as they either do no capture tuna (FADs) or are designed to require active fishing (purse seine nets, longline). Exceptions for some fisheries, like gillnets, might still apply, and national reviews might be required for these gears, particularly for ghost fishing.

For the purposes of scoring this issue here, estimation of discarding and evidence of response is used to indicate a review (i.e., considering levels of discard and by extension its reduction where possible).

In the case of tropical tuna fisheries using FADs, a joint meeting of tRFMOs in 2019 reviewed the science and advice for mitigating FAD impacts, including reducing the mortality of the juvenile tunas. This meeting considered research and technological findings that could, help, inter alia, to inform alternative management measures to reduce juvenile bigeye and yellowfin tuna mortality: FAD monitoring and tracking, to minimise the potential for lost or abandoned FADs to be fished by other vessels; the use of acoustic discrimination techniques for juvenile tuna species identification. The meeting also identified the need to investigate the effects of depth, behaviour, and selectivity of purse seine nets, which could inform alternative measures for reducing unwanted juvenile bigeye tuna mortality. Consideration of the impact of FADs on juvenile tunas and recommendations about specific mitigation measures to reduce those impacts are expected to be addressed in a follow-up meeting, which has not yet taken place. It should be noted that the capture of juvenile bigeye and yellowfin are not unwanted in the sense that they would be discarded, only their capture may constrain the skipjack fishery as well as cause growth overfishing and impact the spawning stock and other gears, such as longline. Therefore, this effectively is an attempt to change the joint fishery selectivity, not reduce unwanted catch.

The main concern with discards of tuna appears to apply to the purse seine fleet. WCPFC has in place CMM 2009-02, which aims to limit discard mortality and requires reporting of discard events. In addition, recent CMMs on tropical tunas (2023-01 and previous iterations) aim to reduce undesirable catch of juvenile bigeye through control of effort on FADs and require purse seine to retain yellowfin, bigeye, and skipjack on board for landing. On this basis, discarding is clearly subject to review, and controls are being implemented, meeting SG80. While conservation measures are regularly examined every two years, it is not clear that these measures to address unwanted target stock catches are reviewed frequently enough to meet SG100.

All SG60 were met, and 2 out of 3 SG80 were met.

PI 1.2.1 : 75

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P.1.2.2 Harvest control rules and tools

1.2.2.a HCRs design and application		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
HCRs are **expected to reduce the exploitation rate as the PRI is approached** and are either **generally understood** and **in place**, or **available**.	**Well-defined** HCRs **are in place** that **ensure** the exploitation rate is reduced as the PRI is approached, and are expected to keep the stock **fluctuating around** a target level consistent with (or above) MSY, or for key LTL species at levels 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**.

At SG60, MSC allows a harvest control rule to be 'available' rather than 'in place' if certain requirements summarised below are met (see SE2.2.3-2.2.7 for details). In scoring issue (a) at the SG60 level, the team shall accept "available" HCRs instead of HCRs that are "in place" if:

- 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 B_{MSY} within the next 5 years, and
- "Generally understood" or "well-defined" HCRs are in place for some other UoAs that are under the control of the same management body, and of a similar size and scale as the UoA.

The current harvest strategy (CMM 2023-01 and previous iterations) does not have a well-defined HCR in place for yellowfin. It has a series of measures (restrictions on purse seine effort, FAD purse seine sets, longline catch limits and capacity restrictions) which are intended to restrain catches of yellowfin such that the biomass is maintained at recent (2012-15) levels.

For the first requirement, WCPO yellowfin stock biomass has not previously been reduced below the MSY level, according to the 2023 stock assessment and the probability of either spawning biomass

being below or F above the MSY level is small and, on that basis, it is not likely that the biomass will decline below the MSY level in the next five years. 30-year projections also suggest a low risk of F falling below F_{MSY} (SFP-OFP 2023a). Otherwise, MSC's requirement for an 'available' HCR is met for yellowfin by CMM 2022-03 (replacing CMM 2014-06). Furthermore, a well-defined management procedure (HCR) has been put in place for skipjack, which is the same size and scale of the yellowfin fishery, by the WCPFC (CMM 2022-01).

SG60 requires that management can be expected to reduce the exploitation rate as the PRI is approached. Management of the tropical tuna stocks by WCPFC has gradually been tightened up in recent years. Bigeye was considered overfished from 2011-2017, and evidence from the stock assessment (trajectories from time-dynamic Majuro / Kobe plots, Figure 69 in Day et al. 2023) suggests that the management measures which have been put in place since 2011 have had the effect of reducing F on bigeye. For yellowfin, the decline in stock biomass across the time series has likewise stabilised (see, for example, Figure 45 in Magnusson et al. 2023). This provides some evidence that the current harvest strategy can reduce the exploitation rate of bigeye. SG60 is met. SG80 requires a well-defined HCR, which is not yet in place.

We remain concerned that although strictly the MSC requirements may be met at the time of writing, there has been slow progress with the development of harvest strategies for WCPFC stocks since the commitment was made (CMM 2014-06 was agreed) and strict timelines are not being observed. The workplan for the implementation of CMM 2014-06 has been systematically revised, with CPCs seemingly unwilling to apply the original timetable.

MSC-certified fisheries with condition milestones for the achievement of a formal harvest strategy for this stock should, based on MSC procedures, be first scored at audit as 'behind target' and subsequently (the following year) have their certificates suspended if progress has not been made. We note, however, that a variation request was granted in 2018 to extend the timeline for meeting the condition on this performance indicator, and a new version of the MSC requirements will specifically address the problems encountered by international fisheries. That said, the fishery has since had the conditions surrounding this SI further extended to 2029.

1.2.2.b The robustness of HCRs to uncertainty		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

Since there is no well-defined HCR in place, it cannot be robust to the main uncertainties. SG80 is not met.

1.2.2.c Evaluation of HCRs		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

The tools by which management is implemented are as follows:

- temporal / spatial limits on purse seine setting on FADs
- restrictions on purse seine effort (days)
- purse seine required to retain all tuna catch
- longline catch limits for bigeye
- various limits on increasing fishing capacity

Under SE2.2.6 and 2.2.7, to conclude that 'available' HCRs are 'effective' (SG60), MSC requires evidence of i) the HCRs are effectively used in other stocks or fisheries under the same management body; or ii) a formal agreement or framework with trigger levels which will require the development of a well-defined HCR. It also requires consideration of current exploitation rates in relation to biological reference points, the agreed trigger level and this is consistent with long-term sustainable harvest.

The tools by which management is implemented are as follows:

- temporal / spatial limits on purse seine setting on FADs
- restrictions on purse seine effort (days)
- purse seine required to retain all tuna catch
- longline catch limits for bigeye
- various limits on increasing fishing capacity

CMM 2023-01 sets purse seine effort limits for both EEZs and high seas and also restricts FAD use with an overall limit on active FADs, as well as annual FAD closures. There are no catch limits on longline fishing for yellowfin, although catch limits for bigeye may limit effort for some CMMs.

The catch time series in the 2023 stock assessment runs to 2021; the harvest strategy has only been in place since 2014 and is incremental, so it is not possible to determine the full impact. However, the stock assessment estimates that the downward trajectory of biomass has stabilized in recent years, while the assessment overall estimates that management objectives are being met, and the probabilities of $F < F_{MSY}$ and SB<LRP are both low. (Stock depletion is estimated to be higher in the 2023 stock assessment than in the 2020 assessment, but Magnusson et al. (2023) emphasize in the summary that this is a consequence of a higher estimate of B_0 driven largely by a change in how natural mortality is estimated, as well as some other adjustments to the model.)

Overall, SG60 is met because there is some evidence from the 2020 and 2023 stock assessments that fishing mortality is successfully being limited by the current strategy to sustainable levels. SG80 requires progress on the harvest strategy (under CMM 2022-03) such that it is clearer how management tools are likely to be effective in maintaining a stable biomass at or above reference levels or rebuilding when required (See 1.2.2a above). SG80 is not met.

All SG60 were met, but no SG80 or SG100.

PI 1.2.2 : 60

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P.1.2.3 Information / monitoring

1.2.3.a Range of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

A 2024 review of the scientific data available to WCPFC (and previous iterations of this document) notes that there have been considerable improvements in the last few years. In 2024, all CCMs provided aggregate catch and effort estimates for 2023 by the deadline (30 April), and the quality of these data has also improved (fewer gaps). Operational-level data is provided by most fleets, with the main gap being low coverage of the Indonesia and Vietnam fleets. Purse seine fisheries are required to have 100% observer coverage. Although not all achieve it, observer coverage is high, providing detailed operational-level data and information on catch proportions by species, etc.

WCPFC has provided technical assistance to Vietnam, Indonesia, and the Philippines to address data issues, although some problems remain for these CCMs. Work is also underway to improve historical data. The key data gaps identified in the data availability report generally relate to species other than the main tuna species under WCPFC management – e.g., sharks, species that are discarded, and species lacking good length/weight conversion factors.

Sufficient information (on stock structure, stock productivity, fleet composition), is available to monitor and assess stock status, including aggregate and operational catch and effort data, historical catch data, size-frequency data, and biological information (size at age, tagging), sufficient to support the harvest strategy as well as evaluate alternative management measures as required. SG80 is met.

Concerning SG100, while the data are comprehensive, there remain some issues that could apply to yellowfin (e.g., longline observer coverage and data provision from some countries). The stock assessment notes that data inputs are improving all the time, although uncertainties remain about the biology of the species, the definition of stock boundaries in the Pacific Ocean as well as age and growth. The previous stock assessment noted a paucity of data on yellowfin growth and maturity and emphasized it as an important source of uncertainty. The 2023 peer review considered this issue in detail, noting a potential source of bias, and as a result, the 2023 stock assessment takes a slightly different approach. Although the age/growth curve estimation is not one of the key sensitivities in the 2023 assessment, it still reportedly remains an important source of uncertainty. Another key problem remains the lack of any fishery-independent estimates of biomass. The stock assessment conclusions note that the model predicts ~40% of the biomass to be in the higher latitude model regions (regions 1 and 5), despite a small proportion of the catch being taken in these regions (~6%). Without fishery-independent information with which to compare this model estimate, it is hard to know whether it is reasonable or not. On this basis, SG100 is not met.

1.2.3.b Monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Stock abundance and UoA removals are monitored and **at least 1 indicator** is available and monitored with sufficient frequency to support the harvest strategy.	Stock abundance and UoA removals are **regularly monitored at a level of accuracy and coverage consistent with the harvest strategy**, and **1 or more indicators** are available and monitored with sufficient frequency to support the harvest strategy.	**All information** required by the harvest strategy is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent **uncertainties** in the information (data) and the robustness of assessment and management in dealing with this uncertainty.

Catch, effort, and stock status are monitored at a level that is sufficient for the current harvest strategy. Stock status indicators are updated each year. This meets SG80, although there remain significant uncertainties in the fisheries data, e.g. from Indonesia and Vietnam, which account for a significant proportion of the total removals from the stock. SG100 requires that all information required by the harvest strategy is monitored with a high frequency and a high degree of certainty. The full stock assessments are carried out every 3 years or so, and the data collected with precision and frequency that is more than sufficient to support this process. However, as noted there is not a high degree of certainty in the data, so SG100 is not met.

1.2.3.c Comprehensiveness of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	There is good information on all other fishery removals from the stock.	

All CCMs submit aggregate catch data by the WCPFC deadline, and most also submit operational data. Some of these data sets are of higher quality than others. Catches of tuna are measured and monitored well enough for stock assessment and the harvest strategy. Although monitoring of catches in some areas is far from perfect, these do not pose an unacceptable risk to the harvest strategy. There are several ongoing initiatives to strengthen data collection of member states. Overall, this meets SG80.

All SG60 and SG80 were met, and 0 out of 2 SG100 were met.

PI 1.2.3 : 80

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P.1.2.4 Assessment of stock status

1.2.4.a Appropriateness of assessment to stock under consideration		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment is appropriate for the stock and for the harvest strategy.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.

The most recent assessment of yellowfin tuna in the WCPO was conducted in 2023 using the Multifan-CL software. The yellowfin model is age-structured (40 quarterly age classes) and spatially structured (5 regions, adjusted down from 9 in the 2020 assessment, as part of an attempt to reduce the number of parameters). The catch, effort, size composition, and tagging data used in the model are classified by 37 fisheries (including index fisheries) and quarterly time steps from 1952 to 2021. The assessment included a range of model options and sensitivities that were applied to investigate key structural assumptions and sources of uncertainty in the assessment. The model has been and continues to be developed over the years with frequent supporting analysis research and workshops, and SC19 noted that the most recent assessment (2023) is a considerable improvement.

It is able to account for major features of the biology of the species and makes use of the available data, meeting SG100.

1.2.4.b Assessment approach		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.	

All stock assessments report spawner biomass and fishing mortality relative to a range of reference points, which can be estimated (although some with more certainty than others), including MSY reference points (F_{MSY}, B_{MSY}) and depletion-based reference points (20% B_0). SG80 is met.

1.2.4.c Uncertainty in the assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The assessment **identifies major sources** of uncertainty.	The assessment **takes uncertainty into account**.	The assessment evaluates stock status relative to reference points in a **probabilistic** way.

All WCPFC stock assessments attempt a probabilistic approach, which is subsequently used, where there is sufficient information, to give management advice in the form of risk (projection tables and Kobe plots). Therefore, there is an argument that all assessments, where this is achieved, meet SG100. However, we have applied judgement whether the probabilities are really being estimated and whether probabilities are reported in a form suitable for decision making, such as in risk tables.

The assessment evaluates uncertainty in terms of alternative model structures and addresses uncertainty in data and observations, with critical uncertainties represented across the sensitivity analyses. These were used to construct an uncertainty grid based on 54 alternative models (all combinations of sensitivities. This meets SG80.

For the first time in 2023, the parameter (estimation) uncertainty is estimated for the key management reference ratios (B_{recent} / B_0 and F_{recent} / F_{MSY}); this is combined with the structural uncertainty (range of values from across the uncertainty grid) to try and obtain a fuller picture of the uncertainty in the stock status estimators. This represents best practice in dealing with uncertainties, so SG100 is met.

1.2.4.d Evaluation of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.

The stock assessment process is rigorous, including reviews of data and models through pre-assessment workshops. Similar to previous assessments, the 2023 assessment tested a range of alternative model structures and inputs, different approaches to treating catch, CPUE, size, and

tagging data, estimating natural mortality and selectivity, a different regional structure, additional analyses for ensuring model convergence, and additional estimates of uncertainty in reference ratios. Sensitivities were evaluated for a range of assumptions, including steepness, tag mixing period, and weighting of the size composition data. On this basis, it is reasonable to say that alternative hypotheses and approaches have been rigorously explored.

Despite some concerns (e.g. the apparently anomalous split of biomass between model regions), the assessment provides results that appear to be robust to general determinations of stock status. The set of hypotheses that have been considered appears to cover all likely possibilities. SG100 is met.

1.2.4.e Peer review of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment of stock status is subject to peer review.	The assessment has been **internally and externally peer** reviewed.

The assessment is subject to internal peer review through the WCPFC SC; preparatory workshops are also held before the stock assessment takes place to review data and the approach, so SG80 is met. The 2020 assessment was also subject to an external peer review, but the 2023 was not externally reviewed. As such, the SG80 level is reached, while the SG100 level is not.

All SG60 and SG80 were met, and 3 out of 4 SG100 were met.

PI 1.2.4 : 95

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Western Pacific Skipjack

1.1 Outcome

P.1.1.1 Stock Status

1.1.1.a Stock status relative to recruitment impairment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
It is **likely** that the stock is above the point of recruitment impairment (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.

The most recent stock assessment was in 2022. There is an analytical estimate of B_{MSY}, estimated to be around 17% B_0, below the limit reference point (20% B_0) set by the management procedure (CMM 2022-01).

The MSC default proxy reference point for the PRI is 75% $B_{MSY,}$ where B_{MSY} is estimated at <27% B_0 (as in this case). This would be ~13%B_0. The stock assessment estimates a dynamic B_0 (i.e., a biomass in the absence of fishing mortality) using the estimates of recruitment from the assessment. The median estimates of spawning biomass from the 2022 assessment are 46%/51% of B_0 (latest / 2018-2021 average), which is 3.5 times the MSC proxy for the PRI, and 2.3 times the limit reference point. The minimum estimate across all 18 model runs was 35% / 41%.

There is thus a high degree of certainty that the stock is above the point where recruitment would be impaired, SG100 is met.

1.1.1.b Stock status in relation to achievement of maximum sustainable yield (MSY)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

The 2022 stock assessment gives a median estimate of B/B_{MSY} as 268%-298 % (latest - 2018-2021 average). If we consider that the estimate of B_{MSY} relative to B_0 is too low, we can also consider MSC's proxy for B_{MSY} of 40% B_0. The median estimates of spawning biomass from the 2022

assessment are 46%-51 % of B_0 (latest - 2018-2021 average), so above this level. Six out of the eighteen model runs estimate B/B_0 below 40%. Taking this as a measure of probability, the stock is above the MSC proxy for B_{MSY} with ~66% probability. The trajectory of the diagnostic case model also suggests that it has never been below this level. Fishing mortality remains well below F_{MSY} as estimated in the model. Therefore, there is a high degree of certainty that the stock is above the MSY level, meeting SG100.

All SG60, SG80 and SG100 were met.

PI 1.1.1 : 100

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1.2 Harvest Strategy (Management)

P.1.2.1 Harvest Strategy

1.2.1.a Harvest strategy design		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **expected** to achieve stock management objectives reflected in PI 1.1.1/PI 1.1.1A 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/PI 1.1.1A 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/PI 1.1.1A SG80.

The general objective of the WCPFC is to maintain populations of tunas and tuna-like fishes at levels that will permit maximum sustainable yield (MSY). A specific commitment to long-term sustainable fisheries management was adopted at the Western and Central Pacific Fisheries Commission in 2014 (CMM 2014-06) and revised in 2022 (CMM 2022-03). At its 2015 meeting, the WCPFC adopted a workplan for developing and implementing a harvest strategy approach that includes TRP, HCR, and other elements. The workplan has been regularly reviewed and adjusted as needed (2016-2023).

CMM 2022-01 came into force of 16 February 2023 and sets out a management procedure for WCPO skipjack. The management procedure includes i) reference points and a harvest control rule, ii) an estimation model, iii) a monitoring strategy, and iv) a procedure for 'exceptional circumstances'. It was developed using an MSE process.

The management procedure defines a catch or effort multiplier which ranges from 0.2 to 1.2, depending on the estimate of stock status (in terms of B/B_0) relative to four reference points. The limit reference point (reference point A in the HCR) is set at $20\%B_0$ (as previously), and below the

LRP, the multiplier = 0.2. Above A the multiplier increases asymptotically to a value of 1 at reference point B (40% B_0), remains at 1 to reference point C (60% B_0), and increases linearly to 1.2 at reference point D (80% B_0). This multiplier is then used to adjust catch or effort relative to a baseline, which is set as follows: purse seine – 2012 effort; pole-and-line – 2001-4 effort; domestic fisheries in region 5 (i.e., Indonesia and Philippines) – 2016-18 level (does not specify whether catch or effort). The MP is to be applied every three years and also stipulates a maximum change in catch/effort of 10%.

CMM 2023-01 provides the practical management tools for limiting effort that are not included in 2022-01. In relation to skipjack, this consists essentially of effort controls on the purse seine fleet (limitations on fishing days and FAD sets). It incorporates the PNA vessel day scheme.

In relation to SG60, the tools in place have succeeded in maintaining good stock status for skipjack (since they are defined with the more vulnerable bigeye and yellowfin stocks in mind), and CMM 2022-01 sets a stock management objective (target reference point), defined as the midpoint between current depletion and long-term equilibrium depletion at the baseline values of catch/effort (how this relates to reference points B and C in the HCR is not immediately clear, but it is well above B_{MSY}). Since the harvest strategy is expected to achieve the management objective, which is consistent with 1.1.1.b SG80, SG60 is met.

SG80 requires that the harvest strategy be responsive to the state of the stock, which is the case, assuming that the management procedure is implemented as planned. It also requires that the elements of the harvest strategy work together. Although it is not yet entirely clear how the management procedure will be implemented, should it determine that catch/effort needs to be reduced, the tools are already provided in the tropical tuna CMMs which have set limits on purse seine effort (and other things) for several years now, while the PNA vessel day scheme has been working successfully for more than a decade. On this basis, the various elements are in place, so SG80 is met.

SG100 requires that the harvest strategy be designed to achieve stock management objectives. The HCR has been designed using an MSE. However, this does not cover the tools which would be used to implement changes to the multiplier if needed, and before we can argue that the entire strategy is 'designed' it is necessary to establish how these are integrated into the harvest strategy. This issue may become clearer once the HCR has been in place for a number of years, but currently, SG100 is not met.

1.2.1.b Harvest strategy evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **likely** to work based on prior experience or plausible argument.	The harvest strategy has been **tested** and is expected to meet the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80 or there is evidence that the harvest strategy is achieving its objectives reflected in PI 1.1.1/ PI 1.1.1A SG80.	The performance of the harvest strategy has been **evaluated** and evidence exists to show that it is achieving the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80, including being clearly able to maintain stocks at target levels.

According to the 2022 stock assessment, the fishing mortality has not increased to the MSY level, and the spawning stock biomass is highly likely to be above the MSY level. Therefore, there is evidence that the current constraints on fishing mortality are adequate to maintain the stock above B_{MSY}. SG80 is met. However, the harvest strategy remains dependent upon general limits on fishing activity rather than directed controls specific to the skipjack stock and has not yet been demonstrated to be able to reduce fishing mortality or maintain the stock at a target level; it therefore does not meet SG100.

1.2.1.c Harvest strategy monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Monitoring is in place that is expected to determine whether the harvest strategy is working.		

There is a stock assessment by SPC every 3 years (2016, 2019, 2022) with a review of stock indicators and trends in intervening years. Catch and effort are monitored to estimate total catch, CPUE, and mean size. The stock assessment reports best estimates of biomass, which indicate whether management is achieving its objectives or not. SG100 is met.

1.2.1.d Harvest strategy review		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The harvest strategy is periodically reviewed and improved as necessary.

According to CMM 22-03 (superseding CMM 14-06), a formal harvest strategy for bigeye, yellowfin and skipjack should be put in place by WCPFC, with provision for periodic review. WCPFC has not yet put in place a management procedure for the bigeye or yellowfin. The current work plan (presented in WCPFC20 Outcomes 2024, Attachment 4) sets an end date of 2026 for the Commission to adopt a management procedure for bigeye and yellowfin (i.e. WCPFC 23).

The existing harvest strategy for yellowfin and bigeye (which also remains in force for skipjack, providing the tools to implement the management procedure), is set out in CMM 2023-01. This has been more or less the same for several years. While there is a regular evaluation of CMM 2023-01 as well as other measures, there has not been action by the WCPFC to update the Harvest Strategy. SG100 is not met.

1.2.1.f Review of alternative measures		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There has been a review of **alternative measures** to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **review** every 5 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock and they are implemented as appropriate.	There is a **review** that happens every 2 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock, and they are implemented, as appropriate.

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. Under v3.1 of the MSC Standard, this must include measures regarding unwanted catch of the target species by ghost gear.

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.

A 2009 review and survey of ghost gear fishing of target species indicated a relatively low impact for longline and purse seine gear, although ghost fishing information on these gears was limited. It is

reasonable, therefore, to assume that this statement remains applicable and that the main issue would arise from lost FADs associated with purse seine fishing. This review also considered preventative measures.

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). Quantification of discards generally depends upon the presence of at-sea observers, and observer coverage has generally been increasing. Discarding of target tunas has been considered low risk to the fisheries compared to other concerns.

Incorporating estimates of discards in catch estimates and the stock assessment amounts to a review of discards generally, but the scoring guideposts require a review of “measures” to minimise discarding of the target stock rather than a review of discarding itself. Whether discards are significant enough to require a review to work out how to reduce them would need to be determined on a case-by-case basis. The nature and frequency of reviews for the effects of ghost fishing is much lower than for discards (see MSC Standard Version 3.1, SA2.4.5.1 and SA3.7.2.3). Nevertheless, while ghost fishing (e.g., lost FADs) may be significant risk to bycatch and ETP species, it is unlikely that they cause any significant mortality to the target tuna species as they either do no capture tuna (FADs) or are designed to require active fishing (purse seine nets, longline). Exceptions for some fisheries, like gillnets, might still apply, and national reviews might be required for these gears, particularly for ghost fishing.

For the purposes of scoring this issue here, estimation of discarding and evidence of response is used to indicate a review (i.e., considering levels of discard and by extension its reduction where possible).

In the case of tropical tuna fisheries using FADs, a joint meeting of tRFMOs in 2019 reviewed the science and advice for mitigating FAD impacts, including reducing the mortality of the juvenile tunas. This meeting considered research and technological findings that could, help, inter alia, to inform alternative management measures to reduce juvenile bigeye and yellowfin tuna mortality: FAD monitoring and tracking, to minimise the potential for lost or abandoned FADs to be fished by other vessels; the use of acoustic discrimination techniques for juvenile tuna species identification. The meeting also identified the need to investigate the effects of depth, behaviour, and selectivity of purse seine nets, which could inform alternative measures for reducing unwanted juvenile bigeye tuna mortality. Consideration of the impact of FADs on juvenile tunas and recommendations about specific mitigation measures to reduce those impacts are expected to be addressed in a follow-up meeting, which has not yet taken place. It should be noted that the capture of juvenile bigeye and yellowfin are not unwanted in the sense that they would be discarded, only their capture may constrain the skipjack fishery as well as cause growth overfishing and impact the spawning stock and other gears, such as longline. Therefore, this effectively is an attempt to change the joint fishery selectivity, not reduce unwanted catch.

The main concern with discards of tuna appears to apply to the purse seine fleet. WCPFC has in place CMM 2009-02, which aims to limit discard mortality and requires reporting of discard events. In addition, recent CMMs on tropical tunas (2023-01 and previous iterations) aim to reduce undesirable catch of juvenile bigeye through control of effort on FADs and require purse seine to retain yellowfin, bigeye, and skipjack on board for landing. On this basis, discarding is clearly subject to review, and controls are being implemented, meeting SG80. While conservation measures are regularly examined every two years, it is not clear that these measures to address unwanted target stock catches are reviewed frequently enough to meet SG100.

All SG60 and SG80 were met, and 0 out of 4 SG100 were met.

PI 1.2.1 : 80

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P.1.2.2 Harvest control rules and tools

1.2.2.a HCRs design and application		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
HCRs are **expected to reduce the exploitation rate as the PRI is approached** and are either **generally understood** and **in place**, or **available**.	**Well-defined** HCRs **are in place** that **ensure** the exploitation rate is reduced as the PRI is approached, and are expected to keep the stock **fluctuating around** a target level consistent with (or above) MSY, or for key LTL species at levels 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**.

WCPFC has established a management procedure (HCR) for skipjack, set out in CMM 2022-01. It is clearly defined (Annex 1) and acts to reduce the exploitation rate as the PRI is approached, by defining a limit reference point (A, 20%B_0) below which the catch/effort multiplier is set at 0.2 and above which it increases to reach 1 at 40%B_0 (reference point B). SG60 is met. The target reference point is set at the average of recent depletion ($B_{2018\text{-}21}/B_0$ = 51%; median) and the equilibrium depletion resulting from agreed baseline conditions (catch/effort multiplier = 1). The management procedure sets the multiplier to 1 across the range of depletion from 40-60%. This, if applied appropriately, should maintain the stock above a level consistent with MSY (significantly above the estimated level of B_{MSY}, and also at or above the MSC proxy of 40% B_0. SG80 and SG100 are met.

1.2.2.b The robustness of HCRs to uncertainty		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

The skipjack management procedure (CMM 2022-01) has been tested using an MSE and is likely to be robust to the main uncertainties. SG80 is met. The MSE considered a wide range of uncertainties (recruitment variability; observation error in input data; error in model assumptions such as steepness, growth, and movement; hyperstability of CPUE; and effort creep). It does not, however, explicitly consider the ecological role of the stock, so SG100 is not met.

1.2.2.c Evaluation of HCRs		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

The tools by which management is implemented are as follows:

- temporal / spatial limits on purse seine setting on FADs
- restrictions on purse seine effort (days)
- purse seine required to retain all tuna catch
- longline catch limits for bigeye
- various limits on increasing fishing capacity

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- temporal / spatial limits on purse seine setting on FADs
- restrictions on purse seine effort (days)
- purse seine required to retain all tuna catch
- longline catch limits for bigeye
- various limits on increasing fishing capacity

The 2022 stock assessment and status quo projections suggest that the spawner biomass and fishing mortality are at appropriate levels. F is well below estimates of F_{MSY}. This provides some evidence that the tools in place (e.g., capacity and FAD limits) are sufficient to restrain harvesting rates to an appropriate level for this species; SG60 is met.

SG80 requires progress on the harvest strategy (under CMM 2022-03) such that it is clearer how management tools are likely to be effective in maintaining a stable biomass at or above reference levels or rebuilding when required (See 1.2.2a above). SG80 is not met.

All SG60 were met, and 2 out of 3 SG80 were met.

PI 1.2.2 : 75

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P.1.2.3 Information / monitoring

1.2.3.a Range of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

A 2024 review of the scientific data available to WCPFC (and previous iterations of this document) notes that there have been considerable improvements in the last few years. In 2024, all CCMs provided aggregate catch and effort estimates for 2023 by the deadline (30 April), and the quality of these data has also improved (fewer gaps). Operational-level data is provided by most fleets, with the main gap being low coverage of the Indonesia and Vietnam fleets. Purse seine fisheries are required to have 100% observer coverage. Although not all achieve it, observer coverage is high, providing detailed operational-level data and information on catch proportions by species, etc.

WCPFC has provided technical assistance to Vietnam, Indonesia, and the Philippines to address data issues, although some problems remain for these CCMs. Work is also underway to improve historical data. The key data gaps identified in the data availability report generally relate to species other than the main tuna species under WCPFC management – e.g., sharks, species that are discarded, and species lacking good length/weight conversion factors.

There is a comprehensive range of information (on stock structure, stock productivity, fleet composition) to monitor and assess stock status, including tagging data for stock identification, catch reporting, and size-frequency sampling by each fleet and detailed catch-per-unit-effort data from these fleets from observers, as well as port sampling and transshipment monitoring. This supports a stock assessment covering 8 separate regions. The stock assessment has been improved in recent years by using pole-and-line fisheries to provide CPUE abundance index, as well as purse seine fisheries. SG100 is met.

1.2.3.b Monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Stock abundance and UoA removals are monitored and **at least 1 indicator** is available and monitored with sufficient frequency to support the harvest strategy.	Stock abundance and UoA removals are **regularly monitored at a level of accuracy and coverage consistent with the harvest strategy**, and **1 or more indicators** are available and monitored with sufficient frequency to support the harvest strategy.	**All information** required by the harvest strategy is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent **uncertainties** in the information (data) and the robustness of assessment and management in dealing with this uncertainty.

That information is sufficient to determine stock status and, therefore, implement a harvest control rule, as clearly demonstrated. Indicators include CPUE time series and size/age composition from the catches. These are regularly monitored and cover the whole stock. While the data are adequate for a suitable harvest control rule meeting the SG80, uncertainties in the data are significant and not necessarily fully understood. The abundance indices depend on commercial fishing activities, which may introduce bias to the index. While indices are standardized, the uncertainties are not necessarily well understood and may change over time. Not all countries are monitoring their fisheries well, so there are gaps in the data. Therefore, because not all information is available and significant uncertainties in some data exist, SG100 is not met. Catch and key abundance index data may not be reliable due to the wide distribution of the stock and a large number of countries involved with differing data collection systems. Further work demonstrating that these gaps and errors are addressed would be required to demonstrate that all information for the harvest strategy is monitored with a high frequency and a high degree of certainty.

1.2.3.c Comprehensiveness of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	There is good information on all other fishery removals from the stock.	

All CCMs submit aggregate catch data by the WCPFC deadline, and most also submit operational data. Some of these data sets are of higher quality than others. Catches of tuna are measured and monitored well enough for stock assessment and the harvest strategy. Although monitoring of catches in some areas is far from perfect, these do not pose an unacceptable risk to the harvest strategy. There are several ongoing initiatives to strengthen data collection of member states. Overall, this meets SG80.

All SG60 and SG80 were met, and 1 out of 2 SG100 were met.

PI 1.2.3 : 90

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P.1.2.4 Assessment of stock status

1.2.4.a Appropriateness of assessment to stock under consideration		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment is appropriate for the stock and for the harvest strategy.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.

The most recent assessment of skipjack tuna in the WCPO was conducted in 2022 using the Multifan-CL software. The model is age-structured (16 quarterly age classes) and spatially structured (8 regions). The catch, effort, size composition, and tagging data used in the model are classified by 31 fisheries and 10 survey fisheries and quarterly time steps from 1952 to 2021. The assessment included a range of model options and sensitivities that were applied to investigate key structural assumptions and sources of uncertainty in the assessment. The model has and continues to be developed over the years with frequent supporting analysis and research, and workshops. It can account for major features of the biology of the species and makes use of the available data, meeting SG100.

1.2.4.b Assessment approach		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.	

All stock assessments report spawner biomass and fishing mortality relative to a range of reference points, which can be estimated (although some with more certainty than others), including MSY reference points (F_{MSY}, B_{MSY}) and depletion-based reference points (20% B_0). SG80 is met.

1.2.4.c Uncertainty in the assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The assessment **identifies major sources** of uncertainty.	The assessment **takes uncertainty into account**.	The assessment evaluates stock status relative to reference points in a **probabilistic** way.

All WCPFC stock assessments attempt a probabilistic approach, which is subsequently used, where there is sufficient information, to give management advice in the form of risk (projection tables and Kobe plots). Therefore, there is an argument that all assessments, where this is achieved, meet SG100. However, we have applied judgement whether the probabilities are really being estimated and whether probabilities are reported in a form suitable for decision making, such as in risk tables.

New developments to the 2019 stock assessment include addressing the recommendations of the 2016 stock assessment report, exploration of uncertainties in the assessment model, particularly in response to the inclusion of additional years of data, and to improve diagnostic weaknesses of previous assessments. The 2022 stock assessment was not changed dramatically in structure or assumptions from 2019, although some tweaks were made as to how growth and length-frequency data were treated in the model.

Sensitivity runs are used to explore the impact of uncertainties in data and model assumptions on the stock assessment results and conclusions, leading to a grid of alternative models used in developing management advice and to determine stock status.

These outputs are useful for evaluating uncertainty relative to general determinations of stock status, and it is clear that uncertainty is taken into account, meeting SG80. As with other assessments, probability-based estimates are reported, and importantly, used in making risk-based decisions. SG100 is met.

1.2.4.d Evaluation of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.

Alternative model structures and sensitivity analyses have been applied to the available data, and results are reported as a range of outcomes resulting from the model structures. The assessment and its alternatives provide results that are robust in their general determinations of stock status. Evidence shows that the set of hypotheses that have been considered in sensitivity analyses, for example, covers likely possibilities. This meets SG100.

1.2.4.e Peer review of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment of stock status is subject to peer review.	The assessment has been **internally and externally peer** reviewed.

The assessment is subject to internal peer review through the WCPFC SC, meeting SG80. No external review has been conducted of the 2022 skipjack stock assessment as far as we can establish, although a peer review has been completed for the yellowfin assessment, and a general external review is also proposed of the approach to characterising uncertainty. Since the structure of the yellowfin model is similar, these will both be relevant to skipjack, and SG100 is therefore partially met. However, SG100 is not fully met until an external review is completed.

All SG60 and SG80 were met, and 3 out of 4 SG100 were met.

PI 1.2.4 : 95

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Eastern Pacific Bigeye

1.1 Outcome

P.1.1.1 Stock Status

1.1.1.a Stock status relative to recruitment impairment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
It is **likely** that the stock is above the point of recruitment impairment (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.

In 2020, IATTC followed a new approach to evaluate stock status. Instead of using a single model as the “best assessment”, the IATTC conducted a benchmark assessment, which was used as the basis of a risk analysis. The analysis included 44 different models, covering a wide range of plausible hypotheses about biology as well as different data sets and assumptions. This risk-based approach was continued in the 2024 benchmark assessment, with 36 total models examined.

Resolution C-23-06 defines target and limit reference points, expressed in terms of spawning biomass (B) and fishing mortality (F), for the tropical tuna species: bigeye, yellowfin, and skipjack. The spawning biomass limit reference point (B_{LIM}) is the threshold value of B that should be avoided because further depletion could endanger the sustainability of the stock. The interim B_{LIM} adopted by the IATTC in 2014 is the spawning biomass that produces 50% of the unexploited recruitment (R_0) if the stock-recruitment relationship follows the Beverton-Holt function with a steepness (h) of 0.75. These are defaults chosen by the Commission rather than analytically determined because the stock-recruitment relationship cannot be fitted and the stock-recruit function and steepness have to be assumed.

Because of historical problems with the stock assessment and perceived changes in recruitment, B_0 is not estimated as a static parameter for status determination but reflects the current recruitment state, which recently has been lower than in the early part of the time series.

For the Beverton-Holt (B-H) stock-recruit function, the PRI is based on two parameters: steepness and the proportional reduction in recruitment when recruitment would be considered "impaired". In general, steepness of 0.75 is considered precautionary, but a 50% recruitment level may not be. There is no direct guidance in MSC Certification Requirements on what would be considered "recruitment impaired". The MSC default PRI=20%B_0 is based on the consideration of precautionary values for these parameters that would apply across a wide range of fisheries. Using this PRI and a default 0.75 steepness in the B-H model implies recruitment of 75% compared to the unexploited recruitment level. A PRI of 8%B_0 is consistent with a 75% recruitment level if steepness is 0.9. The implication is that the Commission's choice of limit reference point is less precautionary than the PRI required by MSC, although a lower PRI than the default 20%B_0 may be justified on the use of a dynamic B_{0_d} which takes account of long-term changes in levels of recruitment.

The B_{MSY} reference point is analytically determined so that the PRI can be based on this. The dynamic MSY target reference point (termed S_{MSY_d} in the documentation) estimated across 21 models (converged models where h=1.0 are excluded here as being unrealistic) varies 15%-26%B_0 for 2023. MSC CR3.1 GSA2.2.3 indicates that the default PRI should be 75% B_{MSY} if B_{MSY}<27% B_0. This implies PRI varies over 11.2% B_0-19.5% B_0, dependent on the model structure and assumptions (Xu et al., 2024: Table 7).

A problem with using alternative reference points to those used by management is that some further calculations and inference are required from published estimates. Based on the 21 models that converged (and excluding h=1.0 as implausible), it can be found that 13 have a current (median) status below the model's PRI, which translates into less than 50% of the models' median estimates. We interpret that as being less than 70% probability ("likely") that the stock is above its PRI, so SG60 is not met.

1.1.1.b Stock status in relation to achievement of maximum sustainable yield (MSY)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

According to the risk analysis, there is a 46.6% probability that $B_{current}$ is below B_{MSY}, based on model-weighted probabilities. In terms of fishing mortality, the probability that current fishing mortality is above MSY levels is 24.7%.

Even taking into account some of these models are implausible, the stock is likely to be close to a level consistent with MSY and fishing mortality is likely to be close to the F_{MSY}. The stock seems stable in recent years and recruitment has improved. Overall, based on the median estimates, this meets SG80. It is, however, not above this level or fluctuating around it with a high degree of certainty. The model results give very wide ranges to the stock status estimates, so SG100 is not met.

None of the 1 SG60 were met.

PI 1.1.1 : Fail

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P.1.1.2 Stock Rebuilding

1.1.2.a Rebuilding timeframes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 that does not exceed **1 generation time** for the stock.

This scoring issue is difficult to score because the risks that prevent PI 1.1.1 from being scored at SG80 are due to uncertainties in the stock assessment rather than the stock necessarily being below the MSY level. In this case, the PRI may be too close to the MSY level for the precision of the stock assessment. Because the stock may not require rebuilding and there is no clear target to rebuild to, we interpret that as effectively close to rebuilt and that this could be achieved shortly or certainly within one generation through application of the HCR, so SG60 is met. However, the speed of rebuilding depends upon the response to the recent assessment results. So, for example, the reference points may be adjusted rather than information improved or rebuilding initiated. Because the rebuilding timeframe cannot be determined precisely, SG100 is not met.

1.1.2.b Rebuilding evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 <b>specified time	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**.

Monitoring is in place to determine whether the rebuilding strategy has been working. Data have been collected regularly for stock assessment. The recent assessment has dealt with critical problems by including uncertainties in the assessment process. Because there are sufficient indicators to monitor changes in stock status, SG60 is clearly met.

It is not clear, however, whether the stock needs rebuilding or what it needs rebuilding to. The problem here is related to levels of risk, and the MSY and PRI biomass levels require higher estimation precision than recently achieved from the information available, so “rebuilding” could be achieved by reducing uncertainty in the stock assessment. We interpret this scoring guidepost in terms of evidence for the level of rebuilding required. There is evidence from the risk assessment that the HCR will be able to reduce fishing mortality and rebuild stocks, taking into account that the stock may not currently be at a low level. This meets SG80. However, there is no strong evidence that rebuilding will be achieved or that, in the future, information will improve to reduce risk sufficiently to score SI 1.1.1.a at SG80. Therefore, SG100 is not met.

All SG60 and SG80 were met, and 0 out of 2 SG100 were met.

PI 1.1.2 : 80

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1.2 Harvest Strategy (Management)

P.1.2.1 Harvest Strategy

1.2.1.a Harvest strategy design		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **expected** to achieve stock management objectives reflected in PI 1.1.1/PI 1.1.1A 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/PI 1.1.1A 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/PI 1.1.1A SG80.

In 2016, IATTC adopted an HCR for tropical tunas based on the interim target and limit reference points adopted in 2014 (Res. C-23-06 amending C-16-02). The HCR aims to prevent fishing mortality from exceeding the MSY level for the tropical tuna stock (bigeye, yellowfin, or skipjack) that requires the strictest management. If fishing mortality or spawning biomass is approaching the corresponding limit reference point with a probability of 10% or greater, then the HCR triggers the establishment of additional management measures to reduce fishing mortality and rebuild the stock. The HCR is implemented via time/area closures and catch limits which vary for different fleets (Res. C-21-04).

The duration of the area closure is set according to the level of F_{mult} (F_{MSY}/F_{latest}) for the stock requiring the strictest management (at present bigeye). Bigeye Tuna is currently above or close to target biomass. Most recently, this has been addressed with the adoption of a risk-based decision analysis approach guiding the scientific advice, but not yet been adopted by the Commission while Yellowfin undergoes Management Strategy Evaluation (MSE). The risk-based method has led to recommendations for additional precautionary controls, particularly on FAD management. On this basis, the current ad hoc approach taken seems reasonable, as long as the risk-based approach can be incorporated into the harvest strategy. SG80 is met.

SG100 requires the harvest strategy to be 'designed' to achieve stock management objectives. The HCR and tools are linked via F_{mult}, which is used to adjust the duration of the closure. It is a bit unclear on what basis the initial 62-day closure was determined to be the correct duration. SG100 is therefore not met.

1.2.1.b Harvest strategy evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **likely** to work based on prior experience or plausible argument.	The harvest strategy has been **tested** and is expected to meet the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80 or there is evidence that the harvest strategy is achieving its objectives reflected in PI 1.1.1/ PI 1.1.1A SG80.	The performance of the harvest strategy has been **evaluated** and evidence exists to show that it is achieving the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80, including being clearly able to maintain stocks at target levels.

According to the 2024 stock assessment, the overall results of the risk analysis indicate a 24% probability that F_{MSY} has been exceeded and a 46.6% probability that spawning stock biomass is below B_{MSY}. The probability that the F limit has been exceeded or that the stock is below the biomass

limit is small. None of the model runs had a probability of exceeding the F limit or the stock being below the biomass limit of greater than 3%. This is sufficient information to indicate that the current strategy is likely to work, so SG60 is met.

A decision analysis has been provided for management to directly address the risks that have been estimated, but no new resolution has been agreed upon. Progress on the response is clearly being made. However, given the stock assessment uncertainties, there is not good evidence for the moment that the current harvest strategy is achieving its objectives (i.e., B_{MSY}) for bigeye, so SG80 is not met.

1.2.1.c Harvest strategy monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Monitoring is in place that is expected to determine whether the harvest strategy is working.		

The harvest strategy is well monitored both in terms of the status of the stock and the catches and fishing mortality rates affecting status. Data are collected to estimate management quantities, which indicates whether management is achieving its objectives or not, meeting SG60.

1.2.1.d Harvest strategy review		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The harvest strategy is periodically reviewed and improved as necessary.

C-20-06 required a review of the harvest strategy annually (para. 21). IATTC has been going through a process for some years of reviewing, evaluating, and adjusting the harvest strategy to arrive at the current point; for example, stock assessment methodologies have changed, and quite a bit of work has gone into defining appropriate reference points and harvest control rules. Problems with the bigeye stock assessment have meant that the harvest strategy has not been fully applied in 2018-2020; IATTC scientific staff recommend that the provisions of C-17-02, rolled over into C-20-06 for 2021, and replaced by C-21-04 for the period 2022-2024. Since then tropical Tunas under IATTC have started undergoing an MSE, where it is likely that many different management and harvest strategies will be tested. However, in the interim, the SG100 level is not met.

1.2.1.f Review of alternative measures		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There has been a review of **alternative measures** to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **review** every 5 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock and they are implemented as appropriate.	There is a **review** that happens every 2 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock, and they are implemented, as appropriate.

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. Under v3.1 of the MSC Standard, this must include measures regarding unwanted catch of the target species by ghost gear.

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.

A 2009 review and survey of ghost gear fishing of target species indicated a relatively low impact for longline and purse seine gear, although ghost fishing information on these gears was limited. It is reasonable, therefore, to assume that this statement remains applicable and that the main issue would arise from lost FADs associated with purse seine fishing. This review also considered preventative measures.

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). Quantification of discards generally depends upon the presence of at-sea observers, and observer coverage has generally been increasing. Discarding of target tunas has been considered low risk to the fisheries compared to other concerns.

Incorporating estimates of discards in catch estimates and the stock assessment amounts to a review of discards generally, but the scoring guideposts require a review of “measures” to minimise discarding of the target stock rather than a review of discarding itself. Whether discards are significant enough to require a review to work out how to reduce them would need to be determined on a case-by-case basis. The nature and frequency of reviews for the effects of ghost fishing is much lower than for discards (see MSC Standard Version 3.1, SA2.4.5.1 and SA3.7.2.3). Nevertheless, while ghost fishing (e.g., lost FADs) may be significant risk to bycatch and ETP species, it is unlikely that they cause any significant mortality to the target tuna species as they either do no capture tuna (FADs) or are designed to require active fishing (purse seine nets, longline). Exceptions for some fisheries, like gillnets, might still apply, and national reviews might be required for these gears, particularly for ghost fishing.

For the purposes of scoring this issue here, estimation of discarding and evidence of response is used to indicate a review (i.e., considering levels of discard and by extension its reduction where possible).

In the case of tropical tuna fisheries using FADs, a joint meeting of tRFMOs in 2019 reviewed the science and advice for mitigating FAD impacts, including reducing the mortality of the juvenile tunas. This meeting considered research and technological findings that could, help, inter alia, to inform alternative management measures to reduce juvenile bigeye and yellowfin tuna mortality: FAD monitoring and tracking, to minimise the potential for lost or abandoned FADs to be fished by other vessels; the use of acoustic discrimination techniques for juvenile tuna species identification. The meeting also identified the need to investigate the effects of depth, behaviour, and selectivity of purse seine nets, which could inform alternative measures for reducing unwanted juvenile bigeye

tuna mortality. Consideration of the impact of FADs on juvenile tunas and recommendations about specific mitigation measures to reduce those impacts are expected to be addressed in a follow-up meeting, which has not yet taken place. It should be noted that the capture of juvenile bigeye and yellowfin are not unwanted in the sense that they would be discarded, only their capture may constrain the skipjack fishery as well as cause growth overfishing and impact the spawning stock and other gears, such as longline. Therefore, this effectively is an attempt to change the joint fishery selectivity, not reduce unwanted catch.

The main concern with discards of tuna appears to apply to the purse seine fleet. Under IATTC rules, all bigeye, skipjack, and yellowfin brought on board are required to be landed, except that unfit for human consumption (C-17-02; C-20-06; C-21-04). Work is ongoing to try and reduce the catch of juvenile tunas and non-target species in the purse seine catch (see C-17-02; C-20-06; C-21-04). On this basis, the unwanted catch is clearly subject to review and research, and controls are being implemented, meeting SG80. It is not known how frequently the reviews are being carried out, so SG100 is not met.

All SG60 were met, and 2 out of 3 SG80 were met.

PI 1.2.1 : 75

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P.1.2.2 Harvest control rules and tools

1.2.2.a HCRs design and application		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
HCRs are **expected to reduce the exploitation rate as the PRI is approached** and are either **generally understood** and **in place**, or **available**.	**Well-defined** HCRs **are in place** that **ensure** the exploitation rate is reduced as the PRI is approached, and are expected to keep the stock **fluctuating around** a target level consistent with (or above) MSY, or for key LTL species at levels 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**.

The HCR for EPO tropical tunas is set out in Res. C-23-06, as follows:

- Management controls that are established for multiple years (e.g. closures) should have the objective of maintaining fishing mortality at F_{MSY} for the species requiring strictest management.
- If the probability that $F>F_{lim}$ is >10%, management measures shall be established that have a probability of at least 50% that F will reduce to F_{MSY} or below, and with a probability of <10% of $F>F_{lim}$.
- If the probability that $B<B_{lim}$ is >10%, management measures shall be established such that there is at least a 50% probability that B will recover to B_{MSY} or above, and with a probability of <10% that B will decline to $<B_{lim}$ within two generations or 5 years, whichever is greater.
- For gears other than purse seine, recommended controls will be as consistent as possible with purse seine, taking into account their impact on the stock.

That is, it can be expected to keep the biomass above the limit reference point, and most likely above the PRI (given the relatively precautionary probability of $B<B_{lim}$ set as a trigger for management action) and fluctuating around MSY level. SG60 is met.

Although there is a well-defined HCR, its application to yellowfin and bigeye was suspended 2018-2019 due to the lack of appropriate indicators produced from stock assessments. While the stock assessment has been successfully reviewed and revised for 2020, the *status quo* has been maintained with a rollover of the 2017 resolution (C-17-02 to C-21-04). With the return of suitable

risk-based measures in 2020, the HCR can be applied and evaluated. Because a precautionary well-defined harvest control rule is being applied that is expected to keep the stock fluctuating around or above MSY and to reduce exploitation as the stock approaches its PRI, and it is in place, SG80 is met. The HCR lacks detail or justification to keep stocks at levels higher than MSY and or address the ecological role of the stock, though the upcoming MSE may provide that detail or justification. As such, SG100 is not met currently.

1.2.2.b The robustness of HCRs to uncertainty		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

The 2018 stock assessments for yellowfin and the bigeye were highly uncertain, with IATTC scientists noting that estimates of stock status in relation to reference points are not robust enough to be used by management. In 2020 (and 2024 for bigeye and skipjack), stock assessments were updated successfully and a risk assessment was carried out for the three species that provided parameters suitable for the HCR and conducted a decision analysis to guide decision-making under risk. The HCR was applied with a robust risk-based approach, and together with MSE testing, this indicates that the main uncertainties are being addressed. On this basis, SG80 is met. However, to account for the structural uncertainties, the methodology has changed, and this has not been fully tested. More recommendations have been made to address uncertainties, but they have not been implemented yet. The range of uncertainties being addressed by the HCR is limited, as is the evidence for its robustness. Further recent work suggests a more precautionary approach to setting reference points (i.e. secretariat staff has recommended a revision in the biomass target limiting it to a minimum of B_{MSY}/B_0 = 30%) should be in use. Therefore, SG100 is not met.

1.2.2.c Evaluation of HCRs		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

The tools to implement the HCR are set out in Res. C-17-01 and C-17-02 (rolled over to 2020 as C-20-05 and C-20-06 and replaced by C-21-04); the key tool is the seasonal closure. They were selected by IATTC because they have been used in the past and/or can be used over periods longer than a year. That is, IATTC has taken a pragmatic approach to the selection of appropriate tools. The closure is not explicitly linked to the HCR in the way that (for example) catch limits would be, but the number of days of closure has been adjusted according to F_{mult} (F_{MSY}/F) and other factors (e.g., estimated increases in capacity). Although the HCR was not fully applied in 2018, the duration of the closure remains appropriate for Yellowfin, according to the 2020 stock assessment. There is a provision for

review and adjustment according to the outcome. On that basis, the available evidence indicates that the tools are likely to be effective in controlling exploitation rates. SG80 is met.

Concerning SG100, the link between the closure duration and exploitation rates is very unclear, and the duration of the closure is a matter of negotiation between IATTC members rather than a clearly defined element of the HCR. On this basis, SG100 is not met.

All SG60 and SG80 were met, and 0 out of 3 SG100 were met.

PI 1.2.2 : 80

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P.1.2.3 Information / monitoring

1.2.3.a Range of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

Sufficient information (on stock structure, stock productivity, fleet composition), is available to monitor and assess stock status including reporting and size-frequency sampling by each fleet and catch-per-unit-effort data from these fleets. There is a long history of biological and environmental

research on EPO tuna stocks, and considerable environmental information that is not explicitly used in the harvest strategy.

Bigeye tuna are distributed across the Pacific Ocean. It has been questioned whether the current division of stock assessment and management into the EPO and the WCPO is appropriate; joint stock assessments have been tried in the past but not considered to be an improvement on the current system.

Biology and life history are relatively well understood and sufficient for stock assessment. Fleet compositions are well monitored. There is considerable environmental data that is not directly used in the harvest strategy. Some key information on stock productivity is not well-estimated, notably on growth and natural mortality, although some improvements in these estimates have taken place. Overall, these data are sufficient for stock assessments to monitor status and mortality rates to support a harvest strategy, despite recent problems with the assessment, meeting SG80. However, available data falls short of being comprehensive, with gaps in the information for some fleets, as well as issues with biological data (stock structure, growth, mortality). Overall, this meets SG80, but not SG100.

1.2.3.b Monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Stock abundance and UoA removals are monitored and **at least 1 indicator** is available and monitored with sufficient frequency to support the harvest strategy.	Stock abundance and UoA removals are **regularly monitored at a level of accuracy and coverage consistent with the harvest strategy**, and **1 or more indicators** are available and monitored with sufficient frequency to support the harvest strategy.	**All information** required by the harvest strategy is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent **uncertainties** in the information (data) and the robustness of assessment and management in dealing with this uncertainty.

Stock abundance and fishery removals are regularly monitored at a level of accuracy and coverage consistent with the HCR, and indicators of catch and effort are available and monitored with sufficient frequency to support the HCR, including annual updates of the stock assessments. Substantial amounts of information are collected, including data on retained catches, discards, indices of abundance (CPUE and acoustic buoy indices), and the size compositions of the catches of the various fisheries. In addition, there is observer data which provides discard estimates. However, data from some fleets are incomplete. In general, however, there is good information on fishery removals from the stock. SG80 is met, but since reporting from some fleets is limited, there is not a high degree of certainty about all information needed for the HCR. SG100 is not met.

1.2.3.c Comprehensiveness of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	There is good information on all other fishery removals from the stock.	

Catches are reasonably well monitored and are sufficient for stock assessment. There has been an IATTC observer program since 1993 for larger vessels, and the United States has had an observer program since the 1970s. Observer coverage has allowed discards of tuna to be estimated, as well as

estimates of bycatch of other species. The level of monitoring is sufficient for the harvest strategy and therefore meets SG80.

All SG60 and SG80 were met, and 0 out of 2 SG100 were met.

PI 1.2.3 : 80

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P.1.2.4 Assessment of stock status

1.2.4.a Appropriateness of assessment to stock under consideration		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment is appropriate for the stock and for the harvest strategy.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.

The assessment was benchmarked in 2016, 2020, and 2024. The assessment uses an integrated statistical age-structured stock assessment model (Stock Synthesis). The stock assessment requires substantial amounts of information, including data on retained catches, discards, indices of abundance (CPUE), and the size compositions of the catches of the various fisheries. Assumptions have been made about processes such as growth, recruitment, movement, natural mortality, and stock structure.

As with yellowfin tuna, the 2018 update assessment was rejected, and subsequently, two external reviews were carried out before the 2020 benchmark assessment. The 2020 assessment developed alternative stock hypotheses in a hierarchical risk framework that addressed uncertainties and issues with previous assessments by integrating fourteen reference models covering a) the apparent regime shift in recruitment (R shift), b) the misfit to the length-composition data for the longline fishery that is assumed to have asymptotic selectivity, and c) the steepness of the stock-recruitment relationship. Each reference model was tested with four stock-recruitment steepness assumptions (0.7, 0.8, 0.9, and 1.0). The results from the reference models are combined in a risk analysis to provide management advice. This hierarchical risk framework approach was continued for the 2024 benchmark and seems to show some improvement in stock status.

Notwithstanding the problems of the stock assessment to explain observations, it is designed to be appropriate for the stock (model structure and the ability to use the available data) and derives information that can be used in the harvest control rule. This meets SG80. It is less clear that all issues have been resolved; the current approach is to integrate models that are giving very different results into a single risk assessment. This suggests some underlying flaw in the interpretation of the data or a lack of information. Given that it remains unclear what the problem is, it is not possible to verify whether all major features of the species' biology and nature of the fisheries are taken into account, so SG100 is not met. Some of this may be resolved in the upcoming MSE already underway.

1.2.4.b Assessment approach		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.	

The bigeye and yellowfin stock assessments have estimated stock status in relation to the MSY-related reference points. These are risk based because of significant uncertainties in the stock assessments. Because they are appropriate and stock specific, SG80 is met.

1.2.4.c Uncertainty in the assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The assessment **identifies major sources** of uncertainty.	The assessment **takes uncertainty into account**.	The assessment evaluates stock status relative to reference points in a **probabilistic** way.

All IATTC stock assessments attempt a probabilistic approach, which is subsequently used, where there is sufficient information, to give management advice in the form of risk (projection tables and Kobe plots). Therefore, there is an argument that all assessments, where this is achieved, meet SG100. However, we have applied judgement whether the probabilities are really being estimated and whether probabilities are reported in a form suitable for decision making, such as in risk tables.

The yellowfin and bigeye model-based stock assessments considered wide uncertainties in model configuration and input parameter estimates (model diagnostics and sensitivity analyses) and set out probabilistic projections of future stock trajectories under different model assumptions. In 2020, a risk analysis was conducted for yellowfin and bigeye tunas to evaluate several management quantities related to the IATTC HCR. As a result, stock status was presented as probabilities, and a decision analysis was used to determine the best management action to limit risks. This approach not only considers uncertainty in evaluating stock status but attempts to account for uncertainty in a fully probabilistic way, meeting SG100.

1.2.4.d Evaluation of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.

The 2024 benchmark assessment, in response to external reviews, used 21 reference models in the assessment within a hierarchical framework that addressed three major uncertainties: a) the apparent regime shift in recruitment (R shift), b) the misfit to the length-composition data for the longline fishery that is assumed to have asymptotic selectivity, and c) the steepness of the stock-recruitment relationship. This, together with various sensitivity analyses, rigorously explored a wide range of alternative hypotheses. However, having been tested, it is not clear that the assessment is robust, and instead, a decision analysis has been used to manage the risks. Because the stock assessment is not robust, SG100 is not met.

1.2.4.e Peer review of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment of stock status is subject to peer review.	The assessment has been **internally and externally peer** reviewed.

The Scientific Advisory Committee provides internal review of stock assessments each year; the SAC reports show extensive discussion on model inputs, output uncertainties, stock structure and data gaps. This indicates that the assessments are subject to routine peer review, so SG80 is met.

The 2017 benchmark assessments for yellowfin and bigeye were subject to two external reviews each to address significant structural problems in the models which led to the rejection of the 2018 scientific advice and reliance on empirical indicators for advice. Benchmark assessments were completed in 2020 and again in 2024, though the yellowfin assessment failed review. Because IATTC periodically convenes external expert panels to peer review stock assessments, SG100 is met.

All SG60 and SG80 were met, and 2 out of 4 SG100 were met.

PI 1.2.4 : 90

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Eastern Pacific Yellowfin

1.1 Outcome

P.1.1.1 Stock Status

1.1.1.a Stock status relative to recruitment impairment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
It is **likely** that the stock is above the point of recruitment impairment (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.

In 2020, a benchmark assessment was conducted that served as the basis for a risk analysis. This analysis included 48 models that cover different hypotheses, datasets, and assumptions on EPO yellowfin tuna biology. This new approach gave considerably different results in comparison to the 2019 assessment. An assessment was attempted in 2024, but the results were not accepted during the review.

Resolution C-23-06 defines target and limit reference points, expressed in terms of spawning biomass (B) and fishing mortality (F), for the tropical tuna species: bigeye, yellowfin, and skipjack. The spawning biomass limit reference point (B_{LIM}) is the threshold value of B that should be avoided because further depletion could endanger the sustainability of the stock. The interim B_{LIM} adopted by the IATTC in 2014 is the spawning biomass that produces 50% of the unexploited recruitment (R_0) if the stock-recruitment relationship follows the Beverton-Holt function with a steepness (h) of 0.75. These are defaults chosen by the Commission rather than analytically determined because the stock-recruitment relationship cannot be fitted and the stock-recruit function and steepness have to be assumed.

Because of historical problems with the stock assessment and perceived changes in recruitment, B_0 is not estimated as a static parameter for status determination but reflects the current recruitment state, which recently has been lower than in the early part of the time series.

For the Beverton-Holt (B-H) stock-recruit function, the PRI is based on two parameters: steepness and the proportional reduction in recruitment when recruitment would be considered “impaired”. In general, steepness of 0.75 is considered precautionary, but a 50% recruitment level may not be. There is no direct guidance in MSC Certification Requirements on what would be considered “recruitment impaired”. The MSC default PRI=20%B_0 is based on the consideration of precautionary values for these parameters that would apply across a wide range of fisheries. Using this PRI and a default 0.75 steepness in the B-H model implies recruitment of 75% compared to the unexploited recruitment level. A PRI of 8%B_0 is consistent with a 75% recruitment level if steepness is 0.9. The implication is that the Commission’s choice of limit reference point is less precautionary than the PRI

required by MSC, although a lower PRI than the default 20%B_0 may be justified on the use of a dynamic B_{0_d} which takes account of long-term changes in levels of recruitment.

The B_{MSY} reference point is analytically determined, so the PRI can be based on this. The dynamic MSY target reference point (termed S_{MSY_d} in the documentation) estimated across 36 models (models where h=1.0 are excluded here as being unrealistic) varies 13%-23%B_0 for 2019. MSC CR3.1 GSA2.2.3 indicates that the default PRI should be 75% B_{MSY} if B_{MSY}<27%B_0. This implies PRI varies over 9.6%-17.6%B_0 depending on the model structure and assumptions (Minte-Vera et al., 2020: Table 8).

The problem with using alternative reference points to those used by management is further calculations and inferences are required from published estimates. Based on the 36 models (excluding h=1.0 as implausible), it can be found that 4 have a current (median) status below the model's PRI, which translates into around 11%. We interpret that as being greater than 80% probability ("highly likely") that the stock is above its PRI, so SG80 is met, but SG100 is not met.

1.1.1.b Stock status in relation to achievement of maximum sustainable yield (MSY)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

According to the risk analysis, the model-weighted median of the B_{2019}/B_{MSY} ratio across all 48 models is 1.58 and the probability that the stock is overfished ($B_{2019} < B_{MSY}$) is 12%. In terms of fishing mortality, the probability that current fishing mortality is above MSY levels is 9%.

Even taking into account some of these models are implausible, the stock is still highly likely to be above a level consistent with MSY and meets SG80. It is, however, not above this level with a high degree of certainty, and given recent low recruitment, notwithstanding low fishing mortality and recent increases in biomass over a range of models, it is not clearly fluctuating around MSY level with a high degree of certainty, so SG100 is not met.

All SG60 and SG80 were met, and 0 out of 2 SG100 were met.

PI 1.1.1 : 80

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1.2 Harvest Strategy (Management)

P.1.2.1 Harvest Strategy

1.2.1.a Harvest strategy design		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **expected** to achieve stock management objectives reflected in PI 1.1.1/PI 1.1.1A 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/PI 1.1.1A 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/PI 1.1.1A SG80.

In 2016, IATTC adopted an HCR for tropical tunas based on the interim target and limit reference points adopted in 2014 (Res. C-23-06 amending C-16-02). The HCR aims to prevent fishing mortality from exceeding the MSY level for the tropical tuna stock (bigeye, yellowfin, or skipjack) that requires the strictest management. If fishing mortality or spawning biomass is approaching the corresponding limit reference point with a probability of 10% or greater, then the HCR triggers the establishment of additional management measures to reduce fishing mortality and rebuild the stock. The HCR is implemented via time/area closures and catch limits which vary for different fleets (Res. C-21-04).

The duration of the area closure is set according to the level of F_{mult} (F_{MSY}/F_{latest}) for the stock requiring the strictest management (at present bigeye). Bigeye Tuna is currently above or close to target biomass. Most recently, this has been addressed with the adoption of a risk-based decision analysis approach guiding the scientific advice, but not yet been adopted by the Commission while Yellowfin undergoes Management Strategy Evaluation (MSE). The risk-based method has led to recommendations for additional precautionary controls, particularly on FAD management. On this basis, the current ad hoc approach taken seems reasonable, as long as the risk-based approach can be incorporated into the harvest strategy. SG80 is met.

SG100 requires the harvest strategy to be 'designed' to achieve stock management objectives. The HCR and tools are linked via F_{mult}, which is used to adjust the duration of the closure. It is a bit unclear on what basis the initial 62-day closure was determined to be the correct duration. SG100 is therefore not met.

1.2.1.b Harvest strategy evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **likely** to work based on prior experience or plausible argument.	The harvest strategy has been **tested** and is expected to meet the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80 or there is evidence that the harvest strategy is achieving its objectives reflected in PI 1.1.1/ PI 1.1.1A SG80.	The performance of the harvest strategy has been **evaluated** and evidence exists to show that it is achieving the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80, including being clearly able to maintain stocks at target levels.

The 2020 stock assessment indicated only a 9% probability that the fishing mortality corresponding to the maximum sustainable yield (F_{MSY}) has been exceeded and a 12% probability that the spawning stock biomass corresponding to the maximum sustainable yield (B_{MSY}) has been breached. The probability that the F and B limit reference points have been exceeded is zero. The harvest strategy continues to be applied through C-21-04 and there is evidence that it is continuing to achieve objectives, so SG80 is met.

Tunas in the IATTC are currently undergoing an MSE. In the interim, Staff has recommended a revision in the biomass target limiting it to a minimum of $B_{MSY}/B_0 = 0.3$, which has yet to be implemented. A full examination of the strategy will likely be implemented with the MSE, but in the interim the SG100 is not met.

1.2.1.c Harvest strategy monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Monitoring is in place that is expected to determine whether the harvest strategy is working.		

The harvest strategy is well monitored both in terms of the status of the stock and the catches and fishing mortality rates affecting status. Data are collected to estimate management quantities, which indicates whether management is achieving its objectives or not, meeting SG60.

1.2.1.d Harvest strategy review		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The harvest strategy is periodically reviewed and improved as necessary.

C-20-06 required a review of the harvest strategy annually (para. 21). IATTC has been going through a process for some years of reviewing, evaluating, and adjusting the harvest strategy to arrive at the current point; for example, stock assessment methodologies have changed, and quite a bit of work has gone into defining appropriate reference points and harvest control rules. Problems with the bigeye stock assessment have meant that the harvest strategy has not been fully applied in 2018-2020; IATTC scientific staff recommend that the provisions of C-17-02, rolled over into C-20-06 for 2021, and replaced by C-21-04 for the period 2022-2024. Since then tropical Tunas under IATTC have

started undergoing an MSE, where it is likely that many different management and harvest strategies will be tested. However, in the interim, the SG100 level is not met.

1.2.1.f Review of alternative measures		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There has been a review of **alternative measures** to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **review** every 5 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock and they are implemented as appropriate.	There is a **review** that happens every 2 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock, and they are implemented, as appropriate.

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. Under v3.1 of the MSC Standard, this must include measures regarding unwanted catch of the target species by ghost gear.

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.

A 2009 review and survey of ghost gear fishing of target species indicated a relatively low impact for longline and purse seine gear, although ghost fishing information on these gears was limited. It is reasonable, therefore, to assume that this statement remains applicable and that the main issue would arise from lost FADs associated with purse seine fishing. This review also considered preventative measures.

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). Quantification of discards generally depends upon the presence of at-sea observers, and observer coverage has generally been increasing. Discarding of target tunas has been considered low risk to the fisheries compared to other concerns.

Incorporating estimates of discards in catch estimates and the stock assessment amounts to a review of discards generally, but the scoring guideposts require a review of “measures” to minimise discarding of the target stock rather than a review of discarding itself. Whether discards are significant enough to require a review to work out how to reduce them would need to be determined on a case-by-case basis. The nature and frequency of reviews for the effects of ghost fishing is much lower than for discards (see MSC Standard Version 3.1, SA2.4.5.1 and SA3.7.2.3). Nevertheless, while ghost fishing (e.g., lost FADs) may be significant risk to bycatch and ETP species, it is unlikely that they cause any significant mortality to the target tuna species as they either do no capture tuna (FADs) or are designed to require active fishing (purse seine nets, longline). Exceptions for some fisheries, like gillnets, might still apply, and national reviews might be required for these gears, particularly for ghost fishing.

For the purposes of scoring this issue here, estimation of discarding and evidence of response is used to indicate a review (i.e., considering levels of discard and by extension its reduction where possible).

In the case of tropical tuna fisheries using FADs, a joint meeting of tRFMOs in 2019 reviewed the science and advice for mitigating FAD impacts, including reducing the mortality of the juvenile tunas. This meeting considered research and technological findings that could, help, inter alia, to inform alternative management measures to reduce juvenile bigeye and yellowfin tuna mortality: FAD monitoring and tracking, to minimise the potential for lost or abandoned FADs to be fished by other vessels; the use of acoustic discrimination techniques for juvenile tuna species identification. The

meeting also identified the need to investigate the effects of depth, behaviour, and selectivity of purse seine nets, which could inform alternative measures for reducing unwanted juvenile bigeye tuna mortality. Consideration of the impact of FADs on juvenile tunas and recommendations about specific mitigation measures to reduce those impacts are expected to be addressed in a follow-up meeting, which has not yet taken place. It should be noted that the capture of juvenile bigeye and yellowfin are not unwanted in the sense that they would be discarded, only their capture may constrain the skipjack fishery as well as cause growth overfishing and impact the spawning stock and other gears, such as longline. Therefore, this effectively is an attempt to change the joint fishery selectivity, not reduce unwanted catch.

The main concern with discards of tuna appears to apply to the purse seine fleet. Under IATTC rules, all bigeye, skipjack, and yellowfin brought on board are required to be landed, except that unfit for human consumption (C-17-02; C-20-06; C-21-04). Work is ongoing to try and reduce the catch of juvenile tunas and non-target species in the purse seine catch (see C-17-02; C-20-06; C-21-04). On this basis, the unwanted catch is clearly subject to review and research, and controls are being implemented, meeting SG80. It is not known how frequently the reviews are being carried out, so SG100 is not met.

All SG60 and SG80 were met, and 0 out of 4 SG100 were met.

PI 1.2.1 : 80

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P.1.2.2 Harvest control rules and tools

1.2.2.a HCRs design and application		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
HCRs are **expected to reduce the exploitation rate as the PRI is approached** and are either **generally understood** and **in place**, or **available**.	**Well-defined** HCRs **are in place** that **ensure** the exploitation rate is reduced as the PRI is approached, and are expected to keep the stock **fluctuating around** a target level consistent with (or above) MSY, or for key LTL species at levels 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**.

The HCR for EPO tropical tunas is set out in Res. C-23-06, as follows:

- Management controls that are established for multiple years (e.g. closures) should have the objective of maintaining fishing mortality at F_{MSY} for the species requiring strictest management.
- If the probability that $F>F_{lim}$ is >10%, management measures shall be established that have a probability of at least 50% that F will reduce to F_{MSY} or below, and with a probability of <10% of $F>F_{lim}$.
- If the probability that $B<B_{lim}$ is >10%, management measures shall be established such that there is at least a 50% probability that B will recover to B_{MSY} or above, and with a probability of <10% that B will decline to $<B_{lim}$ within two generations or 5 years, whichever is greater.
- For gears other than purse seine, recommended controls will be as consistent as possible with purse seine, taking into account their impact on the stock.

That is, it can be expected to keep the biomass above the limit reference point, and most likely above the PRI (given the relatively precautionary probability of $B<B_{lim}$ set as a trigger for management action) and fluctuating around MSY level. SG60 is met.

Although there is a well-defined HCR, its application to yellowfin and bigeye was suspended 2018-2019 due to the lack of appropriate indicators produced from stock assessments. While the stock assessment has been successfully reviewed and revised for 2020, the *status quo* has been maintained with a rollover of the 2017 resolution (C-17-02 to C-21-04). With the return of suitable risk-based measures in 2020, the HCR can be applied and evaluated. Because a precautionary well-defined harvest control rule is being applied that is expected to keep the stock fluctuating around or

above MSY and to reduce exploitation as the stock approaches its PRI, and it is in place, SG80 is met. The HCR lacks detail or justification to keep stocks at levels higher than MSY and or address the ecological role of the stock, though the upcoming MSE may provide that detail or justification. As such, SG100 is not met currently.

1.2.2.b The robustness of HCRs to uncertainty		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

The 2018 stock assessments for yellowfin and the bigeye were highly uncertain, with IATTC scientists noting that estimates of stock status in relation to reference points are not robust enough to be used by management. In 2020 (and 2024 for bigeye and skipjack), stock assessments were updated successfully and a risk assessment was carried out for the three species that provided parameters suitable for the HCR and conducted a decision analysis to guide decision-making under risk. The HCR was applied with a robust risk-based approach, and together with MSE testing, this indicates that the main uncertainties are being addressed. On this basis, SG80 is met. However, to account for the structural uncertainties, the methodology has changed, and this has not been fully tested. More recommendations have been made to address uncertainties, but they have not been implemented yet. The range of uncertainties being addressed by the HCR is limited, as is the evidence for its robustness. Further recent work suggests a more precautionary approach to setting reference points (i.e. secretariat staff has recommended a revision in the biomass target limiting it to a minimum of B_{MSY}/B_0 = 30%) should be in use. Therefore, SG100 is not met.

1.2.2.c Evaluation of HCRs		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

The tools to implement the HCR are set out in Res. C-17-01 and C-17-02 (rolled over to 2020 as C-20-05 and C-20-06 and replaced by C-21-04); the key tool is the seasonal closure. They were selected by IATTC because they have been used in the past and/or can be used over periods longer than a year. That is, IATTC has taken a pragmatic approach to the selection of appropriate tools. The closure is not explicitly linked to the HCR in the way that (for example) catch limits would be, but the number of days of closure has been adjusted according to F_{mult} (F_{MSY}/F) and other factors (e.g., estimated increases in capacity). Although the HCR was not fully applied in 2018, the duration of the closure remains appropriate for yellowfin, according to the 2020 stock assessment. There is a provision for review and adjustment according to outcome. On that basis, the available evidence indicates that the tools are likely to be effective in controlling exploitation rates. SG80 is met.

Concerning SG100, the link between the closure duration and exploitation rates is very unclear, and the duration of the closure is a matter of negotiation between IATTC members rather than a clearly defined element of the HCR. On this basis, SG100 is not met.

All SG60 and SG80 were met, and 0 out of 3 SG100 were met.

PI 1.2.2 : 80

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P.1.2.3 Information / monitoring

1.2.3.a Range of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

Sufficient information (on stock structure, stock productivity, fleet composition), is available to monitor and assess stock status including reporting and size-frequency sampling by each fleet and catch-per-unit-effort data from these fleets. There is a long history of biological and environmental research on EPO tuna stocks, and considerable environmental information that is not explicitly used in the harvest strategy.

Yellowfin tuna are distributed across the Pacific Ocean. Movement of tagged yellowfin tuna is generally limited to hundreds of kilometres in most cases and exchange between the EPO and the WCPO appears to be limited, and limited genetic information suggests more limited movement. The stock structure was identified as an important uncertainty in the recent assessment. The current stock designation is sufficient, even if improvements are possible.

Biology and life history are relatively well understood and sufficient for stock assessment. Fleet compositions are well monitored. There is considerable environmental data, which is not directly used in the harvest strategy. Some key information on stock productivity is not well-estimated, notably on growth and natural mortality, although some improvements in these estimates have taken place. Overall, these data are sufficient for stock assessments to monitor status and mortality rates to support a harvest strategy, meeting SG80. However, available data falls short of being comprehensive with gaps in the information for some fleets. Overall, this meets SG80, but not SG100.

1.2.3.b Monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Stock abundance and UoA removals are monitored and **at least 1 indicator** is available and monitored with sufficient frequency to support the harvest strategy.	Stock abundance and UoA removals are **regularly monitored at a level of accuracy and coverage consistent with the harvest strategy**, and **1 or more indicators** are available and monitored with sufficient frequency to support the harvest strategy.	**All information** required by the harvest strategy is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent **uncertainties** in the information (data) and the robustness of assessment and management in dealing with this uncertainty.

Stock abundance and fishery removals are regularly monitored at a level of accuracy and coverage consistent with the HCR, and indicators of catch and effort are available and monitored with sufficient frequency to support the HCR, including annual updates of the stock assessments. Substantial amounts of information are collected, including data on retained catches, discards, indices of abundance (CPUE and acoustic buoy indices), and the size compositions of the catches of the various fisheries. In addition, there is observer data which provides discard estimates. However, data from some fleets are incomplete. In general, however, there is good information on fishery removals from the stock. SG80 is met, but since reporting from some fleets is limited, there is not a high degree of certainty about all information needed for the HCR. SG100 is not met.

1.2.3.c Comprehensiveness of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	There is good information on all other fishery removals from the stock.	

Catches are reasonably well monitored and are sufficient for stock assessment. There has been an IATTC observer program since 1993 for larger vessels, and the United States has had an observer program since the 1970s. Observer coverage has allowed discards of tuna to be estimated, as well as estimates of bycatch of other species. The level of monitoring is sufficient for the harvest strategy and therefore meets SG80.

All SG60 and SG80 were met, and 0 out of 2 SG100 were met.

PI 1.2.3 : 80

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P.1.2.4 Assessment of stock status

1.2.4.a Appropriateness of assessment to stock under consideration		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment is appropriate for the stock and for the harvest strategy.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.

The integrated age-structured Stock Synthesis stock assessment was benchmarked in 2016 and 2020. The stock assessment requires substantial amounts of information, including data on retained catches, discards, indices of abundance (CPUE), and the size compositions of the catches of the various fisheries. Assumptions have been made about processes such as growth, recruitment, movement, natural mortality and stock structure.

As with bigeye tuna, the 2018 update assessment was rejected and subsequently, two external reviews were carried out before the 2020 benchmark assessment. The 2020 assessment developed alternative stock hypotheses in a hierarchical risk framework that addressed uncertainties and issues with previous assessments by integrating twelve reference models covering a) oversensitivity to the inclusion of new data, mainly from the longline index of abundance, and inconsistencies between that index and the purse-seine ones, b) misfit to length-composition data for the fishery that is assumed to have asymptotic selectivity, and c) the steepness of the stock-recruitment relationship. The reference model was tested with four stock-recruitment steepness assumptions (0.7, 0.8, 0.9, and 1.0) to create a grid of 48 models. In addition, new fishery definitions were implemented, and spline selectivity functions were adopted for most fisheries. The results from the reference models are combined in a risk analysis to provide management advice. However, in 2024 the yellowfin assessment was also rejected, casting some doubt on the future of assessment work for this stock.

Notwithstanding the problems of the stock assessment to explain observations, it is designed to be appropriate for the stock (model structure and the ability to use the available data) and derives information that can be used in the harvest control rule. The successful 2020 assessment coupled with the risk assessment are sufficient to meet SG80. It is less clear that all issues have been resolved, and there may be some underlying flaw in the interpretation of the data or lack of information. Given it remains unclear what is causing the widely varying status estimates, it is not possible to verify whether all major features of the species biology and nature of the fisheries are taken into account, therefore the SG100 level is not met. Some of this may be resolved in the upcoming MSE already underway.

1.2.4.b Assessment approach		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.	

The bigeye and yellowfin stock assessments have estimated stock status in relation to the MSY-related reference points. These are risk based because of significant uncertainties in the stock assessments. Because they are appropriate and stock specific, SG80 is met.

1.2.4.c Uncertainty in the assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The assessment **identifies major sources** of uncertainty.	The assessment **takes uncertainty into account**.	The assessment evaluates stock status relative to reference points in a **probabilistic** way.

All IATTC stock assessments attempt a probabilistic approach, which is subsequently used, where there is sufficient information, to give management advice in the form of risk (projection tables and Kobe plots). Therefore, there is an argument that all assessments, where this is achieved, meet SG100. However, we have applied judgement whether the probabilities are really being estimated and whether probabilities are reported in a form suitable for decision making, such as in risk tables.

The yellowfin and bigeye model-based stock assessments considered wide uncertainties in model configuration and input parameter estimates (model diagnostics and sensitivity analyses) and set out probabilistic projections of future stock trajectories under different model assumptions. In 2020, a

risk analysis was conducted for yellowfin and bigeye tunas to evaluate several management quantities related to the IATTC HCR. As a result, stock status was presented as probabilities, and a decision analysis was used to determine the best management action to limit risks. This approach not only considers uncertainty in evaluating stock status but attempts to account for uncertainty in a fully probabilistic way, meeting SG100.

1.2.4.d Evaluation of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.

The modelling software Stock Synthesis (SS3) has been well-tested. SS3 provides considerable flexibility in modifying model structure based on diagnostics such as degree of fit to key data sources (catch at size, indices of abundance, etc.).

Unlike previous assessments that relied on one base-case model with an assumed steepness of 1.0 for the stock-recruitment relationship, this benchmark assessment integrates 12 reference models, each with four steepness assumptions (0.7, 0.8, 0.9, and 1.0), for a total of 48 models developed within a hierarchical framework. They address three major uncertainties in the previous assessment: a) oversensitivity to the inclusion of new data, mainly from the longline index of abundance and inconsistencies between that index and the purse-seine ones, b) misfit to length-composition data for the fishery that is assumed to have asymptotic selectivity, and c) the steepness of the stock-recruitment relationship. In addition, new fishery definitions were implemented, and spline selectivity functions were adopted for most fisheries, although key uncertainties concerning spatial structure were not addressed in this assessment. The results were used within a risk assessment to determine a probability-based stock status. However, having been tested, the assessment does not appear robust as it was rejected through review both in 2018 and 2024. A decision analysis has been used to manage the risks. Because the stock assessment is not robust, SG100 is not met.

1.2.4.e Peer review of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment of stock status is subject to peer review.	The assessment has been **internally and externally peer** reviewed.

The Scientific Advisory Committee provides internal review of stock assessments each year; the SAC reports show extensive discussion on model inputs, output uncertainties, stock structure and data gaps. This indicates that the assessments are subject to routine peer review, so SG80 is met.

The 2017 benchmark assessments for yellowfin and bigeye were subject to two external reviews each to address significant structural problems in the models which led to the rejection of the 2018 scientific advice and reliance on empirical indicators for advice. Benchmark assessments were completed in 2020 and again in 2024, though the yellowfin assessment failed review. Because IATTC periodically convenes external expert panels to peer review stock assessments, SG100 is met.

All SG60 and SG80 were met, and 2 out of 4 SG100 were met.

PI 1.2.4 : 90

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Eastern Pacific Skipjack

1.1 Outcome

P.1.1.1 Stock Status

1.1.1.a Stock status relative to recruitment impairment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
It is **likely** that the stock is above the point of recruitment impairment (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.

In 2022, IATTC was able to develop a quantitative assessment for EPO skipjack for the first time. This is an integrated, statistical, age-structured catch-at-length model, using Stock Synthesis. Although the assessment is considered 'interim', the report notes that it is considered by IATTC scientists to be robust for providing management advice.

The 2024 benchmark assessment continued the statistical catch-at-age approach found in Stock Synthesis to develop a reference model and 17 alternate models as sensitivities. IATTC has defined target reference points at B_{MSY} and F_{MSY}. The limit reference point (B_{LIM}) is defined as the biomass producing 50% of unexploited recruitment (R_0) with a Beverton-Holt SR curve at steepness (h) = 0.75; as well as the fishing mortality producing this biomass at equilibrium. B_{LIM} is estimated to be at 0.077 B_0. Since the assessment was unable to estimate MSY reference points, it uses $B=0.3B_0$ as a 'conservative proxy' for B_{MSY}, based on estimated ranges of B_{MSY} for yellowfin and bigeye with a steepness of h=1 (i.e., no stock-recruit relationship).

The reference model indicates that the current ratio of B to B_0 (dSBR in the assessment) was 47% B_0. This is well above IATTC's proxy for the PRI (7.7% B_0) and MSC's proxy (20% B_0). Only one of the alternate models had a median estimate near the target, and its 80% confidence limits did not include either the IATTC or the MSC proxy of PRI. Given this information, the SG60, SG80, and SG100 levels are reached.

1.1.1.b Stock status in relation to achievement of maximum sustainable yield (MSY)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

In the 2024 benchmark assessment, the stock is assessed using the reference model and 17 alternate models that highlight the reference model's sensitivity to various assumptions. None of the alternate models or the reference model showed the stock as being below the current MSY proxy of 30% B_0. Further only one of the alternate models had an 80% confidence interval that encapsulated the target reference point and the SSB has shown a recent upward trend (Bi et al. 2024 figures 17

and 26). SG80 is achieved. However, while none of the alternate models had an 80% confidence interval that bracketed the target reference point, some alternates were fairly close. Additionally, the 80% confidence interval did encapsulate the target reference point as recently as 2022. As such the SG100 is not reached.

All SG60 and SG80 were met, and 1 out of 2 SG100 were met.

PI 1.1.1 : 90

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1.2 Harvest Strategy (Management)

P.1.2.1 Harvest Strategy

1.2.1.a Harvest strategy design		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **expected** to achieve stock management objectives reflected in PI 1.1.1/PI 1.1.1A 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/PI 1.1.1A 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/PI 1.1.1A SG80.

In 2016, IATTC adopted an HCR for tropical tunas based on the interim target and limit reference points adopted in 2014 (Res. C-23-06 amending C-16-02). The HCR aims to prevent fishing mortality

from exceeding the MSY level for the tropical tuna stock (bigeye, yellowfin, or skipjack) that requires the strictest management. If fishing mortality or spawning biomass is approaching the corresponding limit reference point with a probability of 10% or greater, then the HCR triggers the establishment of additional management measures to reduce fishing mortality and rebuild the stock. The HCR is implemented via time/area closures and catch limits which vary for different fleets (Res. C-21-04).

The duration of the area closure is set according to the level of F_{mult} (F_{MSY}/F_{latest}) for the stock requiring the strictest management (at present bigeye). Bigeye Tuna is currently above or close to target biomass. Most recently, this has been addressed with the adoption of a risk-based decision analysis approach guiding the scientific advice, but not yet been adopted by the Commission while Yellowfin undergoes Management Strategy Evaluation (MSE). The risk-based method has led to recommendations for additional precautionary controls, particularly on FAD management. On this basis, the current ad hoc approach taken seems reasonable, as long as the risk-based approach can be incorporated into the harvest strategy. SG80 is met.

SG100 requires the harvest strategy to be 'designed' to achieve stock management objectives. The HCR and tools are linked via F_{mult}, which is used to adjust the duration of the closure. It is a bit unclear on what basis the initial 62-day closure was determined to be the correct duration. SG100 is therefore not met.

1.2.1.b Harvest strategy evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **likely** to work based on prior experience or plausible argument.	The harvest strategy has been **tested** and is expected to meet the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80 or there is evidence that the harvest strategy is achieving its objectives reflected in PI 1.1.1/ PI 1.1.1A SG80.	The performance of the harvest strategy has been **evaluated** and evidence exists to show that it is achieving the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80, including being clearly able to maintain stocks at target levels.

The stock assessment estimates the reference models and the alternate models as having a median SSB higher than the target of 30% of the unfished condition (see 1.1.1). Skipjack is likely to be the most robust species in a mixed fishery, while reference points are set at reasonably precautionary levels, given what is known about the stock-recruit relationship. SG80 is met.

Tunas in the IATTC are currently undergoing an MSE. In the interim, Staff has recommended a revision in the biomass target, limiting it to a minimum of B_{MSY}/B_0 = 30%, which has yet to be implemented. A full examination of the strategy will likely be implemented with the MSE, but the SG100 is not met in the interim.

1.2.1.c Harvest strategy monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Monitoring is in place that is expected to determine whether the harvest strategy is working.		

The harvest strategy is well monitored both in terms of the status of the stock and the catches and fishing mortality rates affecting status. Data are collected to estimate management quantities, which indicates whether management is achieving its objectives or not, meeting SG60.

1.2.1.d Harvest strategy review		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The harvest strategy is periodically reviewed and improved as necessary.

C-20-06 required a review of the harvest strategy annually (para. 21). IATTC has been going through a process for some years of reviewing, evaluating, and adjusting the harvest strategy to arrive at the current point; for example, stock assessment methodologies have changed, and quite a bit of work has gone into defining appropriate reference points and harvest control rules. Problems with the bigeye stock assessment have meant that the harvest strategy has not been fully applied in 2018-2020; IATTC scientific staff recommend that the provisions of C-17-02, rolled over into C-20-06 for 2021, and replaced by C-21-04 for the period 2022-2024. Since then tropical Tunas under IATTC have started undergoing an MSE, where it is likely that many different management and harvest strategies will be tested. However, in the interim, the SG100 level is not met.

1.2.1.f Review of alternative measures		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There has been a review of **alternative measures** to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **review** every 5 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock and they are implemented as appropriate.	There is a **review** that happens every 2 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock, and they are implemented, as appropriate.

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. Under v3.1 of the MSC Standard, this must include measures regarding unwanted catch of the target species by ghost gear.

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.

A 2009 review and survey of ghost gear fishing of target species indicated a relatively low impact for longline and purse seine gear, although ghost fishing information on these gears was limited. It is reasonable, therefore, to assume that this statement remains applicable and that the main issue would arise from lost FADs associated with purse seine fishing. This review also considered preventative measures.

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). Quantification of discards generally depends upon the presence of at-sea observers, and observer coverage has generally been increasing. Discarding of target tunas has been considered low risk to the fisheries compared to other concerns.

Incorporating estimates of discards in catch estimates and the stock assessment amounts to a review of discards generally, but the scoring guideposts require a review of “measures” to minimise discarding of the target stock rather than a review of discarding itself. Whether discards are significant enough to require a review to work out how to reduce them would need to be determined on a case-by-case basis. The nature and frequency of reviews for the effects of ghost fishing is much lower than for discards (see MSC Standard Version 3.1, SA2.4.5.1 and SA3.7.2.3).

Nevertheless, while ghost fishing (e.g., lost FADs) may be significant risk to bycatch and ETP species, it is unlikely that they cause any significant mortality to the target tuna species as they either do no capture tuna (FADs) or are designed to require active fishing (purse seine nets, longline). Exceptions for some fisheries, like gillnets, might still apply, and national reviews might be required for these gears, particularly for ghost fishing.

For the purposes of scoring this issue here, estimation of discarding and evidence of response is used to indicate a review (i.e., considering levels of discard and by extension its reduction where possible).

In the case of tropical tuna fisheries using FADs, a joint meeting of tRFMOs in 2019 reviewed the science and advice for mitigating FAD impacts, including reducing the mortality of the juvenile tunas. This meeting considered research and technological findings that could, help, inter alia, to inform alternative management measures to reduce juvenile bigeye and yellowfin tuna mortality: FAD monitoring and tracking, to minimise the potential for lost or abandoned FADs to be fished by other vessels; the use of acoustic discrimination techniques for juvenile tuna species identification. The meeting also identified the need to investigate the effects of depth, behaviour, and selectivity of purse seine nets, which could inform alternative measures for reducing unwanted juvenile bigeye tuna mortality. Consideration of the impact of FADs on juvenile tunas and recommendations about specific mitigation measures to reduce those impacts are expected to be addressed in a follow-up meeting, which has not yet taken place. It should be noted that the capture of juvenile bigeye and yellowfin are not unwanted in the sense that they would be discarded, only their capture may constrain the skipjack fishery as well as cause growth overfishing and impact the spawning stock and other gears, such as longline. Therefore, this effectively is an attempt to change the joint fishery selectivity, not reduce unwanted catch.

The main concern with discards of tuna appears to apply to the purse seine fleet. Under IATTC rules, all bigeye, skipjack, and yellowfin brought on board are required to be landed, except that unfit for human consumption (C-17-02; C-20-06; C-21-04). Work is ongoing to try and reduce the catch of juvenile tunas and non-target species in the purse seine catch (see C-17-02; C-20-06; C-21-04). On this basis, the unwanted catch is clearly subject to review and research, and controls are being implemented, meeting SG80. It is not known how frequently the reviews are being carried out, so SG100 is not met.

All SG60 and SG80 were met, and 0 out of 4 SG100 were met.

PI 1.2.1 : 80

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P.1.2.2 Harvest control rules and tools

1.2.2.a HCRs design and application		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
HCRs are **expected to reduce the exploitation rate as the PRI is approached** and are either **generally understood** and **in place**, or **available**.	**Well-defined** HCRs **are in place** that **ensure** the exploitation rate is reduced as the PRI is approached, and are expected to keep the stock **fluctuating around** a target level consistent with (or above) MSY, or for key LTL species at levels 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**.

The HCR for EPO tropical tunas is set out in Res. C-23-06, as follows:

- Management controls that are established for multiple years (e.g. closures) should have the objective of maintaining fishing mortality at F_{MSY} for the species requiring strictest management.
- If the probability that $F>F_{lim}$ is >10%, management measures shall be established that have a probability of at least 50% that F will reduce to F_{MSY} or below, and with a probability of <10% of $F>F_{lim}$.
- If the probability that $B<B_{lim}$ is >10%, management measures shall be established such that there is at least a 50% probability that B will recover to B_{MSY} or above, and with a probability of <10% that B will decline to $<B_{lim}$ within two generations or 5 years, whichever is greater.
- For gears other than purse seine, recommended controls will be as consistent as possible with purse seine, taking into account their impact on the stock.

That is, it can be expected to keep the biomass above the limit reference point, and most likely above the PRI (given the relatively precautionary probability of $B<B_{lim}$ set as a trigger for management action) and fluctuating around MSY level. SG60 is met.

In relation to SG80, the HCR is 'well-defined'. The benchmark assessment in 2024 means that F_{mult} can now be estimated for skipjack as well as bigeye and yellowfin. Therefore, the HCR can be applied and evaluated for all three stocks. Because a precautionary well-defined harvest control rule is being applied that is expected to keep the stock fluctuating around or above MSY and will reduce exploitation as the stock approaches its PRI, and it is in place, SG80 is met. The HCR lacks detail or justification to keep stocks at levels higher than MSY and or address the ecological role of the stock, so SG100 is not met.

1.2.2.b The robustness of HCRs to uncertainty		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

The 2018 stock assessments for yellowfin and the bigeye were highly uncertain, with IATTC scientists noting that estimates of stock status in relation to reference points are not robust enough to be used by management. In 2020 (and 2024 for bigeye and skipjack), stock assessments were updated successfully and a risk assessment was carried out for the three species that provided parameters suitable for the HCR and conducted a decision analysis to guide decision-making under risk. The HCR was applied with a robust risk-based approach, and together with MSE testing, this indicates that the main uncertainties are being addressed. On this basis, SG80 is met. However, to account for the structural uncertainties, the methodology has changed, and this has not been fully tested. More recommendations have been made to address uncertainties, but they have not been implemented yet. The range of uncertainties being addressed by the HCR is limited, as is the evidence for its robustness. Further recent work suggests a more precautionary approach to setting reference points (i.e. secretariat staff has recommended a revision in the biomass target limiting it to a minimum of B_{MSY}/B_0 = 30%) should be in use. Therefore, SG100 is not met.

1.2.2.c Evaluation of HCRs		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

The tools to implement the HCR are set out in Res. C-17-01 and C-17-02 (rolled over to 2020 as C-20-05 and C-20-06 and replaced by C-21-04); the key tool is the seasonal closure. They were selected by IATTC because they have been used in the past and/or can be used over periods longer than a year. IATTC has taken a pragmatic approach to the selection of appropriate tools. The closure is not explicitly linked to the HCR or the skipjack reference points in a clear, quantitative way, but operates based on the status of the worst-performing stock, relative to the agreed reference points.

There is provision for review and adjustment according to outcome, and regular review of a variety of indicators as well as a new completed stock assessment that ensure that stock status is tracked. On that basis, the available evidence indicates that the tools are likely to be effective controlling exploitation rates. SG80 is met.

Concerning SG100, the link between the closure duration and exploitation rates is very unclear, and the duration of the closure is a matter of negotiation between IATTC members rather than a clearly defined element of the HCR. On this basis, SG100 is not met, but maybe in the future as a result of the ongoing MSE.

All SG60 and SG80 were met, and 0 out of 3 SG100 were met.

PI 1.2.2 : 80

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P.1.2.3 Information / monitoring

1.2.3.a Range of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

Sufficient information (on stock structure, stock productivity, fleet composition), is available to monitor and assess stock status including reporting and size-frequency sampling by each fleet and catch-per-unit-effort data from these fleets. There is a long history of biological and environmental research on EPO tuna stocks, and considerable environmental information that is not explicitly used in the harvest strategy.

In relation to stock structure, skipjack is managed as two separate stocks in the eastern and western Pacific. The stock assessment notes that the two main hypotheses (distinct populations vs isolation by distance) cannot be distinguished despite a range of studies using different techniques (tagging, fisheries or life history data, otolith chemistry, genetics). There is also a suggestion of distinct sub-

populations east and west of 120oW in the EPO. All these hypotheses have been explored in the past.

For stock productivity, growth and natural mortality are estimated, and the stock assessment explores various hypotheses. Recruitment is also estimated within the model, and is an important driver of dynamics for this short-lived species, and determines to a large extent which reference points can be robustly estimated by the stock assessment.

These data are sufficient for to monitor status and mortality rates to support the harvest strategy, including estimating stock status in relation to reference points. However, available data falls short of being comprehensive with gaps in the information for some fleets. Overall, this meets SG80, but not SG100.

1.2.3.b Monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Stock abundance and UoA removals are monitored and **at least 1 indicator** is available and monitored with sufficient frequency to support the harvest strategy.	Stock abundance and UoA removals are **regularly monitored at a level of accuracy and coverage consistent with the harvest strategy**, and **1 or more indicators** are available and monitored with sufficient frequency to support the harvest strategy.	**All information** required by the harvest strategy is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent **uncertainties** in the information (data) and the robustness of assessment and management in dealing with this uncertainty.

Stock abundance and fishery removals are regularly monitored at a level of accuracy and coverage consistent with the HCR, and indicators of catch and effort are available and monitored with sufficient frequency to support the HCR, including annual updates of the stock assessments. Substantial amounts of information are collected, including data on retained catches, discards, indices of abundance (CPUE and acoustic buoy indices), and the size compositions of the catches of the various fisheries. In addition, there is observer data which provides discard estimates. However, data from some fleets are incomplete. In general, however, there is good information on fishery removals from the stock. SG80 is met, but since reporting from some fleets is limited, there is not a high degree of certainty about all information needed for the HCR. SG100 is not met.

1.2.3.c Comprehensiveness of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	There is good information on all other fishery removals from the stock.	

Catches are reasonably well monitored and are sufficient for stock assessment. There has been an IATTC observer program since 1993 for larger vessels, and the United States has had an observer program since the 1970s. Observer coverage has allowed discards of tuna to be estimated, as well as estimates of bycatch of other species. The level of monitoring is sufficient for the harvest strategy and therefore meets SG80.

All SG60 and SG80 were met, and 0 out of 2 SG100 were met.

PI 1.2.3 : 80

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P.1.2.4 Assessment of stock status

1.2.4.a Appropriateness of assessment to stock under consideration		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment is appropriate for the stock and for the harvest strategy.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.

The 2024 stock assessment uses an integrated statistical age-structured catch-at-length model developed in Stock Synthesis. It uses data specific to the stock (age and growth, natural mortality, tagging data, length-frequency data) and fisheries (catch and abundance indices derived from CPUE and FAD buoys). SG80 and SG100 are met.

1.2.4.b Assessment approach		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.	

The skipjack assessment estimates stock status in relation to reference points. IATTC has set MSY reference points as a target, but these cannot be estimated directly because of assumptions about recruitment, growth and natural mortality. However, a proxy for B_{MSY} is used for skipjack based on the range of values estimated for yellowfin and bigeye, and this is considered to be appropriate and precautionary, and can be estimated by the stock assessment. SG80 is met.

1.2.4.c Uncertainty in the assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The assessment **identifies major sources** of uncertainty.	The assessment **takes uncertainty into account**.	The assessment evaluates stock status relative to reference points in a **probabilistic** way.

All IATTC stock assessments attempt a probabilistic approach, which is subsequently used, where there is sufficient information, to give management advice in the form of risk (projection tables and Kobe plots). Therefore, there is an argument that all assessments, where this is achieved, meet SG100. However, we have applied judgement whether the probabilities are really being estimated and whether probabilities are reported in a form suitable for decision making, such as in risk tables.

The 2024 skipjack stock assessments considered wide uncertainties in model configuration and input parameter estimates (model diagnostics and sensitivity analyses). In 2020, a risk analysis was conducted for yellowfin and bigeye tunas to evaluate several management quantities related to the IATTC HCR. As a result, stock status was presented as probabilities, and a decision analysis was used to determine the best management action to limit risks. This approach is now being applied to skipjack as well. This approach not only takes into account uncertainty in evaluating stock status but also attempts to account for uncertainty in a fully probabilistic way, meeting SG100.

1.2.4.d Evaluation of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.

The assessment is considered by IATTC scientists to be robust for management purposes. The assessment considers a wide range of possible hypotheses, including different hypotheses about age, growth and mortality, an alternative stock structure, inclusion or exclusion or adjustments to data inputs, and different shaped selectivity curves.

However, they note that the process of improvement of stock assessment is still underway and not yet complete, therefore we can conclude for the moment that the robustness testing is not complete, while other configurations remain to be tested (such as incorporating the tagging data into the model). There is a MSE process underway but not yet complete. SG100 is not met.

1.2.4.e Peer review of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment of stock status is subject to peer review.	The assessment has been **internally and externally peer** reviewed.

The Scientific Advisory Committee provides internal review of stock assessments each year; the SAC reports show extensive discussion on model inputs, output uncertainties, stock structure and data gaps. This indicates that the assessments are subject to routine peer review, so SG80 is met. However, because no external review has been conducted as yet, as far as we can tell, SG100 is not met.

All SG60 and SG80 were met, and 2 out of 4 SG100 were met.

PI 1.2.4 : 90

References

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Southern Bluefin

1.1 Outcome

P.1.1.1 Stock Status

1.1.1.a Stock status relative to recruitment impairment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
It is **likely** that the stock is above the point of recruitment impairment (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.

The most recent full stock assessment was in 2023 estimating stock status in 2022. Total reproductive output (TRO: equivalent to spawning stock biomass or B, but applies higher reproductive output for older fish) was estimated at 23%B_0 (80%CI 21%-29%) and 85%B_{MSY} (80%CI 61%-129%), biomass of age 10+ at 17% of initial biomass 22% (80%CI 19%-26%) and fishing mortality at 46%F_{MSY} (80%CI 34%-65%). Stock status has improved since the previous stock assessments conducted in 2020 which indicated that relative TRO was at 20% (80%CI 16-24%) of TRO_0.

Since the PRI has not been analytically determined, MSC proposes two default options: 20%B_0 or 50%B_{MSY}. B_{MSY} is estimated in the 2020 assessment to be 30%B_0, which is less than 40%B_0 and above 27%B_0, so the default PRI is 20%B_0 (see CR3.1 GSA2.2.3). Although not formally declared as a limit reference point, CCSBT also uses 20%TRO_0 as a benchmark (see Attachment 8 to CCSBT-SC28, 2023). B_{2022} was above 20%B_0 (PRI) with 80% probability. Because the stock is above the default PRI with 80% probability, SG80 is met.

1.1.1.b Stock status in relation to achievement of maximum sustainable yield (MSY)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

In 2023, the B_{2022} was estimated to be at 85%B_{MSY} (80%CI 61%-129%), which is below the MSY level, and the stock is still being rebuilt. Stock biomass has trended upwards since its low point of 10% initial TRO in 2009. A review of indicators in 2024 shows little overall change since the previous review. The next stock assessment is due in 2026. SG80 is not met yet.

All SG60 were met, and 1 out of 2 SG80 were met.

PI 1.1.1 : 70

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P.1.1.2 Stock Rebuilding

1.1.2.a Rebuilding timeframes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 that does not exceed **1 generation time** for the stock.

The CCSBT uses a Management Procedure (MP) to set TACs. The MP used to set TACs through 2020 has been the 'Bali Procedure' which has been in use since 2011, but was updated to a 'Cape Town Procedure' for 2021 onwards. For the purposes of this scoring issue, the Cape Town Procedure is scored as the current rebuilding plan and the base year is taken as 2020. Whereas the Bali procedure

was achieving an interim target (20% TRO_0, equivalent to the PRI), the Cape Town Procedure intends to rebuild the stock to its target level. Based on parameters discussed in CCSBT 2019 and using Goodyear (1995), the generation time is around 16.8 years (MSC CR3.1 Box GSA4), so 2 times the generation time is greater than 20 years. SG60 requires that PI 1.1.1 SG80 is achieved within 20 years (i.e., 2040).

The CCSBT's agreed target to be reached by 2035 is 30%TRO_0 as being applied in the current rebuilding plan ('Cape Town Procedure'). The rebuilding target is at a level consistent with PI1.1.1 SG80. The rebuilding programme meets the requirements, rebuilding the stock to MSY within 20 years, so SG60 is met.

Strictly speaking, rebuilding from 2020 is within one generation time (2037), but it is not clear that this is shortest practicable time given the rapid recent increase in stock size, or that B_{MSY} will not be re-estimated making rebuilding longer, so SG100 is not met.

1.1.2.b Rebuilding evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 <b>specified time	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**.

Monitoring of the stock is in place, based on three-yearly stock assessments (most recently in 2023) with an annual review of indicators by the scientific committee and annual updates. Because monitoring to determine whether the rebuilding strategy is working is in place, SG60 is met.

There is strong evidence that the rebuilding strategy is rebuilding the stock because total reproductive output (spawning stock biomass equivalent) and biomass have clearly increased significantly from around 10%B_0 to around 23%B_0 since 2009 (the low point of the time series) based on the stock assessment, supported by various empirical indicators. This is consistent with simulation modelling, which predicts that the current management procedure is on course to achieve the rebuilding target. Fishing mortality is estimated to be around 46%F_{MSY} and below F_{MSY} with a high degree of certainty. In 2022, a review suggested that the stock is continuing to rebuild. Because there is strong evidence that the rebuilding strategy is successfully rebuilding the stock, SG80 and SG100 are met.

All SG60 and SG80 were met, and 1 out of 2 SG100 were met.

PI 1.1.2 : 90

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1.2 Harvest Strategy (Management)

P.1.2.1 Harvest Strategy

1.2.1.a Harvest strategy design		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **expected** to achieve stock management objectives reflected in PI 1.1.1/PI 1.1.1A 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/PI 1.1.1A 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/PI 1.1.1A SG80.

The harvest strategy is a combination of objectives, monitoring, stock assessment, harvest control rules and management actions.

Management of the southern bluefin stock is conducted via a Management Procedure (MP), which is equivalent to an HCR in the MSC requirements, defined in the Bali Procedure for setting TACs to 2020, and being updated by the Cape Town Procedure from 2021. The MP is used to set a TAC for the following three years, and the TAC is allocated to flag states, via an agreed allocation key. The framework for how the MP is used is set out in the Resolution on the Adoption of a Management Procedure (October 2011, updated October 2019). The management objective underlies the management procedure since the MP operating model has been tuned to this objective. There is also a separate rule which specifies exceptional circumstances under which the MP can be overruled and whether or not this applies is evaluated annually by the scientific committee.

Monitoring is conducted via reporting of catch and effort by members and cooperating non-members; a Catch Documentation Scheme to monitor imports, exports and transhipments; port sampling; authorisation and monitoring of farms etc. A stock assessment is conducted every three years (most recently 2023) which informs the decision making. The long-term objective is to maintain the stock around a level consistent with MSY.

Therefore, all the elements of a harvest strategy are in place, and they have been designed to work together to achieve stock management objectives (rebuilding of the stock). The harvest strategy is responsive to the state of the stock, since the TAC is set following a MP which has been designed to rebuild the stock.

However, the management objective is not necessarily fully consistent with PI 1.1.1 SG80, although this has been partly the result of evaluating the harvest strategy with respect to rebuilding from below the PRI, which MSC scoring does not address. The new rebuilding objective is to increase the SSB to 30% B_0 by 2035. The more recent estimates are just below 30% B_0. The 30% target is clearly

less precautionary than might be adopted and heavily dependent on the choice of stock-recruitment steepness. The discussion at SC24 and Commission meeting 26 (2019) suggests that the objective is not to be regarded as a definitive end to rebuilding of the stock, and the long-term objective remains maintaining the stock around a level consistent with MSY (Garcia and Koehler 2014). B_{MSY} has been mentioned several times in the discussion of management objectives at the Commission meetings. In conclusion, although the rebuilding target may not see the stock through to its final long term status, it does in any case make a significant contribution towards meeting this objective.

On this basis, the elements of the harvest strategy are working together towards achieving the stock management objective. SG80 is met. Although the harvest strategy has been 'designed' (via the use of a MP), it has not been designed around a clear ultimate objective consistent with PI 1.1.1 SG80 because the MSY target happens to coincide with the most recent assessment's estimate, but was not included in the design and could be further adjusted. The goals of the long term strategic plan, which include the ecological role of the stock, marine pollution and human safety and so on, have not been decided yet. On this basis SG100 is not met.

1.2.1.b Harvest strategy evaluation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The harvest strategy is **likely** to work based on prior experience or plausible argument.	The harvest strategy has been **tested** and is expected to meet the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80 or there is evidence that the harvest strategy is achieving its objectives reflected in PI 1.1.1/ PI 1.1.1A SG80.	The performance of the harvest strategy has been **evaluated** and evidence exists to show that it is achieving the objectives reflected in PI 1.1.1/ PI 1.1.1A SG80, including being clearly able to maintain stocks at target levels.

The management procedure (MP) was developed and evaluated using a management strategy evaluation (MSE) process. The process tested different models and different combinations of objectives. The 2020 stock assessment update estimated that SSB and 10+ year old biomass have significantly increased since 2009 (the low point in the time series; MP was implemented in 2011). The 2020 stock assessment found that the objective of the Bali Procedure (20% B_0) was met in 2019. Projections under the MSE process suggest that the new Cape Town Procedure will reach the second rebuilding target (30% B_0) within a 15 year time frame. There is also a draft strategic plan for the longer term 2023-2028 to help the Commission meet its objectives.

The MSE together with regular monitoring and updated stock assessments amounts to a full evaluation of the current strategy and provides evidence that it is achieving its objectives, so SG60, SG80 and SG100 are met.

1.2.1.c Harvest strategy monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Monitoring is in place that is expected to determine whether the harvest strategy is working.		

Monitoring of the stock and fishery is in place, based on stock assessments every three years (most recently in 2023) with an annual review of stock status indicators by the SC. There was also a stock assessment update in 2019 associated with the revision of the management procedure. SG60 is met.

1.2.1.d Harvest strategy review		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The harvest strategy is periodically reviewed and improved as necessary.

The management procedure (MP) and strategy are regularly reviewed. Most lately, the MP was reviewed and revised in 2019, moving from the Bali Procedure to the Cape Town Procedure. Therefore, SG100 is met.

1.2.1.f Review of alternative measures		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There has been a review of **alternative measures** to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **review** every 5 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock and they are implemented as appropriate.	There is a **review** that happens every 2 years of **alternative measures** to minimise UoA-related mortality of **unwanted catch** of the target stock, and they are implemented, as appropriate.

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. Under v3.1 of the MSC Standard, this must include measures regarding unwanted catch of the target species by ghost gear.

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.

A 2009 review and survey of ghost gear fishing of target species indicated a relatively low impact for longline and purse seine gear, although ghost fishing information on these gears was limited. It is reasonable, therefore, to assume that this statement remains applicable and that the main issue would arise from lost FADs associated with purse seine fishing. This review also considered preventative measures.

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). Quantification of discards generally depends upon the presence of at-sea observers, and observer coverage has generally been increasing. Discarding of target tunas has been considered low risk to the fisheries compared to other concerns.

Incorporating estimates of discards in catch estimates and the stock assessment amounts to a review of discards generally, but the scoring guideposts require a review of “measures” to minimise discarding of the target stock rather than a review of discarding itself. Whether discards are significant enough to require a review to work out how to reduce them would need to be determined on a case-by-case basis. The nature and frequency of reviews for the effects of ghost fishing is much lower than for discards (see MSC Standard Version 3.1, SA2.4.5.1 and SA3.7.2.3). Nevertheless, while ghost fishing (e.g., lost FADs) may be significant risk to bycatch and ETP species, it is unlikely that they cause any significant mortality to the target tuna species as they either do no capture tuna (FADs) or are designed to require active fishing (purse seine nets, longline). Exceptions for some fisheries, like gillnets, might still apply, and national reviews might be required for these gears, particularly for ghost fishing.

For the purposes of scoring this issue here, estimation of discarding and evidence of response is used to indicate a review (i.e., considering levels of discard and by extension its reduction where possible).

All SG60 and SG80 were met, and 2 out of 3 SG100 were met.

PI 1.2.1 : 95

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P.1.2.2 Harvest control rules and tools

1.2.2.a HCRs design and application		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
HCRs are **expected to reduce the exploitation rate as the PRI is approached** and are either **generally understood** and **in place**, or **available**.	**Well-defined** HCRs **are in place** that **ensure** the exploitation rate is reduced as the PRI is approached, and are expected to keep the stock **fluctuating around** a target level consistent with (or above) MSY, or for key LTL species at levels 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**.

A well-defined HCR is in place in the form of a full management procedure (Cape Town Procedure), which has replaced the Bali Procedure in 2019 for setting the TAC from 2021 onwards. The parameters of the HCR are set out in the Resolution on the Adoption of a Management Procedure, as updated at CCSBT26, October 2019:

- Rebuilding to 20% B_0 with 70% probability by 2035
- Rebuilding to 30% B_0 with 50% probability by 2035
- TAC change constrained to a maximum of 3000t
- TAC set every three years
- TAC allocation according to agreed key (Resolution on the Allocation of Global TAC, as updated in October 2017).

The operating model for the MP was selected by the Scientific Committee (SC24) and endorsed by the Commission (2019) out of four final candidate MPs put forward by different teams of scientists – the selected operating model was termed 'RH13'.

RH13 is a complex model which uses novel data as well as more traditional fishery CPUE (Japanese longline); e.g., gene tagging and 'close kin mark-recapture' (CKMR) data which are fishery-independent methods of estimating population size based on genetic sampling. The operating model adjusts the TAC according to trends in these various datasets – i.e., if the standardised CPUE goes above or below a certain range, it adjusts the TAC; if the estimated trend in adult population size (from CKMR) is increasing more slowly than a given rate, it reduces the TAC; if the estimated recruitment (from gene tagging which estimates age 2 population size) is below a threshold the TAC is decreased – etc. These thresholds are adjusted according to whether the stock is above or below the rebuilding target (currently well below).

There is a well-defined HCR in place which adjusts exploitation rate according to stock status, and has ensured that the stock is rebuilding towards agreed targets above the PRI. SG60 is met.

There is clear evidence that rebuilding is working and fishing mortality is being maintained at the required level. This demonstrates that the current management procedure has reduced the exploitation rate as the PRI was approached, and by extension should keep the stock fluctuating around a level above 30% SB_0, which is above the current estimate of SB_{MSY} (~27%). Given the increased evidence for the ability to rebuild and the likely ability to keep the stock at levels around or above MSY, SG80 is met.

No target has been set which is consistent with MSY, or a higher level taking into account the ecological role of the stock. No clear long term target exists because the focus has been on

rebuilding, and another management procedure may be decided upon once that is complete. Since the stock is below the target level, so this ability is not fully tested, SG100 is not met yet.

1.2.2.b The robustness of HCRs to uncertainty		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

By using various sources of data, both fishery-dependent and fishery-independent, the operating model is more robust to uncertainties. It also takes into account fluctuations in recruitment by including an indicator of juvenile (age 2) abundance. The evidence of rebuilding so far suggests that the MP process is robust and effective in ensuring rebuilding. SG80 is met.

Management procedures generally take account of a wide range of uncertainties which are tested in their design. However, with the stock still well below the MSY level, there has been inadequate consideration of longer-term issues such as the ecological role of the stock, and no evidence has been developed yet relevant to maintaining the stock in its long term state, so SG100 is not met.

1.2.2.c Evaluation of HCRs		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

The key tool used to implement the HCR is a TAC. The TAC is allocated according to an agreed allocation key. Under the adopted management procedure, the TAC is set for three year periods. The TAC for 2018-20 was 17647t, the TAC for 2021-23 was also 17647t, and the TAC for 2024-26 is 20647t. The TAC has not been exceeded as of 2022. The stock assessment includes estimates of the unreported catches. The TAC appears to be successfully applied to CCSBT cooperating parties, and accounts for ~95% of the total catch. The evidence of rebuilding over the last decade suggests that the TAC is set at an appropriate level, taking into account these uncertainties. On this basis, the evidence clearly shows that the tools have been effective and SG100 is met.

All SG60 and SG80 were met, and 1 out of 3 SG100 were met.

PI 1.2.2 : 85

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P.1.2.3 Information / monitoring

1.2.3.a Range of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

Members and cooperating non-members of CCSBT provide data on catch and effort (stratified by gear, month, year and location) and catch at size, as well as fleet composition. Catch in the late 1990s-early 2000s was significantly under-reported, and the Commission have tried to estimate this missing catch based on various scenarios, although these data appear to be kept confidential.

The CCSBT Catch Documentation Scheme (CDS), which came into force in April 2020, requires all landings, transhipments, exports and imports from/to members and cooperating non-members to be reported to the Commission.

For fishery-independent data, the stock assessment uses novel genetic data (gene tagging and CKMR data). There is also an aerial survey and information on age and growth and other biological data to inform the stock assessment. It is thought that there is only one spawning location (south of Java) and that all southern bluefin are part of the same stock. Indonesia conducts sampling at the spawning site to characterise the spawning population.

The review of scientific activities in Scientific Committee Meetings shows that there is extensive research being conducted on bluefin biology and populations, including the work on genetics, ageing via otoliths and spine, reproductive biology and ecology, the development of other survey- and fishery-based population indicators, mapping of catch and effort and strategies for estimating unreported catch.

The range of information is comprehensive, and includes information on stock structure, productivity (age and growth, fecundity and reproductive behaviour), fleet composition, stock abundance (3-yearly stock assessments) and fishery removals. Other information including an aerial survey and genetic information and analysis informs the stock assessment and the MP, which use all available data. Because the information is relatively comprehensive, SG100 is met.

1.2.3.b Monitoring		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Stock abundance and UoA removals are monitored and **at least 1 indicator** is available and monitored with sufficient frequency to support the harvest strategy.	Stock abundance and UoA removals are **regularly monitored at a level of accuracy and coverage consistent with the harvest strategy**, and **1 or more indicators** are available and monitored with sufficient frequency to support the harvest strategy.	**All information** required by the harvest strategy is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent **uncertainties** in the information (data) and the robustness of assessment and management in dealing with this uncertainty.

Fishery removals are monitored directly by members and cooperating non-members reporting to the Commission (accounting for ~94% of estimated removals in 2023), with current and historical IUU and other removals estimated by the Secretariat. Stock abundance is monitored via 3-yearly stock assessments using a wide variety of abundance indices including close kin mark recapture methods which provides estimates of absolute abundance. This is sufficient to support the current management procedure which was designed to make best use of the available information. There is confirmation that data are sufficient to describe the stock and fishery dynamics because the stock is recovering as expected. Because the management procedure was designed to use the wide range of data available taking account of the coverage and consistency of the information, SG60 and SG80 are met.

Although the range of information available is good, there remain some uncertainties, notably in relation to under-reported catch, which, while having been reduced, has not been eliminated. Although these uncertainties are understood and action has been taken to improve information, SG100 is not met because there is not a ‘high degree of certainty’ in all information.

1.2.3.c Comprehensiveness of information		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	There is good information on all other fishery removals from the stock.	

Removals by members and cooperating non-members are reported, and the Catch Documentation Scheme will in the future provide a cross-check by monitoring transhipments and trade. There is some unreported catch by non-members (thought to be mainly bycatch of longliners flagged to non-member countries in the Indian Ocean), which is estimated by the Secretariat; this bycatch was estimated in 2018 to account for ~7% of total removals. Although catches do exceed quotas in some cases, there is a mechanism for correction. Indonesia exceeded its TAC for the 2020 fishing season by 456.6t. CCSBT 28 agreed that Indonesia will repay this amount by reducing its Total Available Catch by 91.3t for each of the 2022-2026 fishing seasons. The monitoring of removals, including estimates of unreported catch, is sufficient for the management procedure and stock assessment and therefore meets SG80.

All SG60 and SG80 were met, and 1 out of 2 SG100 were met.

PI 1.2.3 : 90

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P.1.2.4 Assessment of stock status

1.2.4.a Appropriateness of assessment to stock under consideration		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment is appropriate for the stock and for the harvest strategy.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.

The CCSBT Scientific Committee completes a full stock assessment every three years, as originally specified in the Meta-rules for the Bali Procedure. The stock assessment provides information on whether the stock is rebuilding, the projected timeframe to meet the objective of the rebuilding plan

(i.e., 30% of TRO_0) and current stock size and fishing mortality relative to commonly used reference points. The stock assessment is not used to run the management procedure or recommend the TAC. The stock assessment uses all available indicators (CPUE indices, size compositions, fishery independent abundance indicators) as appropriate and has been designed to take advantage of the available data. Preparatory work for the triennial stock assessments takes place in the years between, including addressing problems encountered when adjusting the stock assessment and management procedures.

The Management Procedure (MP) is used to calculate the global TAC recommended by the ESC to the Commission for decision. The Cape Town Procedure uses only three monitoring series as inputs, the defined analyses and decision-rule to recommend the change in TAC. The MP is fully specified (as originally tested in the MSE process, 2019) and is not changed following selection by the Commission. The running of the MP is independent of the SBT stock assessment and the MP is not used to estimate the spawning stock biomass (TRO) or estimate whether the rebuilding target has been met.

The model selected as the operating model for the management procedure evaluation is a sophisticated statistical maximum posterior density model which uses a range of input datasets including from fisheries (standardised CPUE), fishery-independent (aerial surveys, tagging, genetic information) and biological information (age and growth, maturity etc.). Likewise, the stock assessment uses all available indicators and diagnostics. Therefore, the models take into account both the biology of the species and the nature of the various fisheries, so SG80 and SG100 are met.

1.2.4.b Assessment approach		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.	

The assessment estimates stock status in relation to a range of reference points, including biomass depletion B/B_0 for various age classes, MSY reference points (F/F_{MSY}) and the reference points required by the MPs (i.e., 20% B_0 with 70% probability). SG80 is met.

1.2.4.c Uncertainty in the assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The assessment **identifies major sources** of uncertainty.	The assessment **takes uncertainty into account**.	The assessment evaluates stock status relative to reference points in a **probabilistic** way.

For the 2023 stock assessment included a revised reference set of 108 models and data through to 2022, following the review of preliminary models and data and decisions made at the 13th Operating Model and Management Procedure (OMMP) technical meeting. These were used to construct the credible intervals for SSB and F ratios using a Bayesian approach. There is also a provision for 'exceptional circumstances' which mitigates risk by allowing for the MP to be set aside under specified circumstances when the population does not behave as the operating model predicts. The model was used to generate probabilities in a form used by management to determine status, and separately the HCR has been tested using MSE which evaluates a wide range of

uncertainties formally. Because uncertainty is taken into account and stock status is evaluated and reported in a probabilistic way, SG60, SG80 and SG100 are met.

1.2.4.d Evaluation of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
		The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.

The process of revising the MP (from Bali to Cape Town) has been a process of evaluating competing candidate models (CMPs). SC24 describes the 'four final CMP', from which the model RH13 was selected as the operating model for the 'Cape Town Procedure'. Other models were DMRM, which ran separate TAC-setting procedures based on each indicator and then combined them into a weighted average; AAA, which used only the genetic data as abundance indicators, rather than including CPUE; and NT4 which calculates TAC based on CPUE trend but then adjusts it based on the genetic abundance indicator. Although the models are focused on the procedure of setting TAC, they estimate stock status through various indicators that are used in decision making.

The performance of the previous MP (the Bali Procedure) suggests that the models are robust and precautionary; SSB increased at a faster rate than predicted by the model. There is also the 'exceptional circumstances' meta-rule procedure (which is evaluated every year) for additional robustness, plus an annual review of fishery indicators. The 2024 ESC found no evidence of exceptional circumstances and therefore confirmed the TAC recommendation for 2024-2026 of 20,647 t/year, which the Commission endorsed.

The most recent stock assessment in 2023 covering indicated that the stock has continued to rebuild as expected since the last assessment in 2020. A wide model reference set was used to test the robustness of this conclusion. Because the stock assessment and advice are designed to be robust and a wide range of alternative "states of nature" have been considered and rigorously explored, SG100 is met.

1.2.4.e Peer review of assessment		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	The assessment of stock status is subject to peer review.	The assessment has been **internally and externally peer** reviewed.

The SC is made up of scientists from member countries, who provide review and comment on work and models presented to the SC, as is clear from the SC reports. SG80 is met. An independent Advisory Panel provides external review of stock assessments and MPs, and the SC has an external independent chair. Part of the terms of reference of the Advisory Panel is to provide their own report to the SC and Commission on 'stock assessments and other matters'. Because there is a process of internal and external review of the stock assessment, SG100 is met.

All SG60, SG80 and SG100 were met.

PI 1.2.4 : 100

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Principle 3: Effective management

The fishery is subject to an effective management system that respects local, national and international laws and standards and incorporates institutional and operational frameworks that require use of the resource to be responsible and sustainable.

Commission for the Conservation of Southern Bluefin Tuna

3.1 Governance and Policy

P.3.1.1 Legal and/or customary framework

3.1.1.a Compatibility of laws or standards with effective management		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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** that deliver management outcomes consistent with MSC Principles 1 and 2.

The management systems of all flag states of the UoA and all coastal states (i.e. states in whose national waters the fishery takes place) must be assessed under this scoring issue (SI), as well as any international management regime that is in place for the fishery. Since scoring elements are not used for Principle 3, the guideposts at each management level, including the national management system of *all* flag and coastal states, must be met for the fishery to achieve the score in question.

The Commission for the Conservation of Southern Bluefin Tuna (CCSBT) is a regional fisheries management organisation (RFMO) responsible for the management of southern bluefin tuna (SBT) throughout the stock's area of distribution. CCSBT was established through the Convention for the Conservation of Southern Bluefin Tuna (the CCSBT Convention) (CCSBT 1993), which was signed in 1993 and entered into force in 1994. According to its website, the CCSBT has two types of membership as well as a cooperating status for non-members, respectively: Member of the Commission, Member of the Extended Commission and Cooperating Non-Member of the Extended Commission. Membership of the Commission is open to any state whose vessels engage in fishing for SBT and any other coastal state whose jurisdiction the stock migrates through. Membership of the Extended Commission is open to regional economic integration organisations, entities or fishing entities whose vessels have caught SBT at any time in the previous three calendar years. The Extended Commission reports to the Commission, and decisions of the Extended Commission become decisions of the Commission, unless the Commission decides otherwise. Members of the Extended Commission have the same obligations as Members of the Commission, including compliance with the decisions of the CCSBT and the provision of financial contributions. The same access criteria apply for becoming a Cooperating Non-Member of the Extended Commission; i.e. states meeting the requirements can choose between applying for membership, with the rights and obligations that entails, or for status as Cooperating Non-Member. The latter have the right to participate actively in meetings of the Extended Commission, the Extended Scientific Committee and

their subsidiary bodies, including the right to make proposals and to speak, but not to vote. They must comply with the decisions of the CCSBT, but they are not required to provide financial contributions. Members of the Commission are Australia (joined in 1994), Japan (joined in 1994), New Zealand (joined in 1994), the Republic of Korea (joined in 2001), Indonesia (joined in 2008) and South Africa (joined in 2016). Additional members of the Extended Commission are the fishing entity of Taiwan (joined in 2002) and the European Union (joined in 2015) (CCSBT 2023a). There are currently no Cooperating Non-Members (ibid.). Decisions are taken by consensus (CCSBT 1993, Art. 7), and the quorum is two-thirds of the parties (ibid., Art. 6(7)).

The objective of CCSBT is to ensure, through appropriate management, the conservation and optimum utilisation of SBT (CCSBT 1993, Art. 3). The parties to the Commission shall cooperate in the collection and exchange of fisheries data, biological samples and other information relevant for scientific research on SBT and ecologically related species (Art. 5(3)). The Commission shall determine total allowable catch (TAC) and its allocation among the parties (see SI 3.1.1c and PI 3.1.3 below on allocation criteria) unless it decides upon other appropriate measures on the basis of recommendations from its subsidiary Scientific Committee (Art. 3(a)). It may also 'if necessary, decide upon other additional measures' (Art. 8(3)(b)). These decisions made under Article 3 of the Convention are legally binding upon the parties (Art. 8(7)). See CCSBT (2025) for a list of operational resolutions. For detailed rules of procedure for the Commission and the Extended Commission, see CCSBT (2018a) and CCSBT (2013a), respectively.

The CCSBT meets annually and has five subsidiary bodies which provide advice on their areas of expertise, either annually or as required: i) the Scientific Committee (SC)/Extended Scientific Committee (ESC) (along with other technical working groups that may be required to complete its work, such as the Operating Model and Management Procedure (OMMP) Technical Meeting); ii) the Finance and Administration Committee (FAC); iii) the Compliance Committee (CC) and technical working groups; iv) the Ecologically Related Species Working Group (ERSWG); and v) the Strategy and Fisheries Management Working Group (SFMWG) (CCSBT 2023a).

Allocation shares between the parties have been fixed (CCSBT): 35.5643 % of the TAC each to Australia and Japan, 7.1568 % each to Korea and Taiwan, 6.2779 % to New Zealand, 5.7785 % to Indonesia, 2.4387 % to South Africa and 0.0628 % to the EU (CCSBT 2023b, Annex).

Since the fishery is 'subject to international cooperation', it is scored according to the provisions in SA4.3.1(b) (SG60), SA4.3.2(b) (SG80) and SA4.3.3(b) (SG100) of the MSC Fisheries Standard v3.1. Presuming that there is an effective national legal system in place in the relevant flag and coastal states, the first requirement across SG60-SG100 is met. The international cooperation delivers at least the collection and sharing of scientific data, the scientific assessment of stock status and the development of scientific advice (SA4.3.1.1), and we can presume that the flag state has at least cooperative non-member status in CCSBT (SA4.3.1.2). Hence, there is a framework for cooperation with other parties to deliver management outcomes consistent with MSC Principles 1 and 2. SG60 is met.

Cooperation is organised and effective in the sense that it delivers agreement and management actions consistent with management advice, as well as monitoring and control (SA4.3.2(b)(iii)). The flag state is presumed to be member of CCSBT (SA4.3.2(b)(iv)). SG80 is met.

There are two additional requirements at SG100: that cooperation must be based on binding agreement (SA4.3.3(b)(ii)) and that management outcomes consistent with MSC Principles 1 and 2 are delivered (SA4.3.3(b)(iii)). The CCSBT Convention is a binding agreement (treaty) acceded to by (presumably) all relevant states engaged in the fisheries, and permanent allocation shares have been fixed, so the first criterion at SG100 is met. Whether the system delivers management outcomes consistent with MSC Principles 1 and 2 must be assessed in the concrete situation and cannot be concluded for all times and contexts. The last performance review of CCSBT (Sinan et al. 2021) (see SI 3.2.4a) concluded that CCSBT has performed exceptionally well in recent years on the

management of the target stock but less so with regard to non-target species. SG100 is not met. That is, it is not met by default, but it might be achievable.

3.1.1.b Resolution of disputes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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, which is appropriate to the context of the fishery and has been **tested and proven to be effective**.

Disputes may arise at national level in the flag and coastal states of the UoA fishery or at international level in CCSBT, and dispute resolution mechanisms must exist at both levels. In the following, it is presumed that SG100 is met for the national level.

The CCSBT Convention contains provisions for dispute settlement in Article 16 and in the Annex for an Arbitrational Tribunal (CCSBT 1993). First, if a dispute arises between two or more of the parties concerning the interpretation or implementation of the Convention, they shall consult among themselves with a view to having the dispute resolved by negotiation, inquiry, mediation, conciliation, arbitration, judicial settlement or other peaceful means of their own choice (Art. 16(1)). Second, if a dispute is not solved through such means, it shall, with the consent of all parties to the dispute, be referred for settlement to the International Court of Justice (ICJ) or to arbitration (Art. 16(2)). The arbitral tribunal shall be composed of three arbitrators: one from each party and one appointed jointly by them. The third arbitrator, who presides over the tribunal, must not be a national of either party or of the same nationality as the first two arbitrators (Annex, Art. 1). The award of the arbitral tribunal shall be made by a majority of its members, who may not abstain from voting (Annex, Art. 3). Any party to the Convention which is not a party to the dispute may intervene in the proceedings with the consent of the arbitral tribunal (Annex, Art. 4). The award of the arbitral tribunal is final and binding on all parties to the dispute and on any party that has intervened in the proceedings (Annex, Art. 5).

At the wider international level, disputes can be solved through the means available to the parties according to international law in general, and the law of the sea in particular. According to Article 27 of the UN Fish Stocks Agreement (UNFSA 1995), states have the obligation to settle their disputes by negotiation, inquiry, mediation, conciliation, arbitration, judicial settlement, resort to regional agencies or arrangements, or other peaceful means of their own choice. The Agreement, in Article 30, makes the provisions relating to the settlement of disputes in Part XV of the UN Law of the Sea Convention (UNCLOS 1982) applicable, *mutatis mutandis*, to any dispute between parties to the Agreement concerning the interpretation or application of a subregional, regional or global fisheries agreement relating to straddling fish stocks or highly migratory fish stocks to which they are parties, including any dispute concerning the conservation and management of such stocks, whether or not they are also parties to the Convention. According to the Convention's Articles 286-287, disputes must be submitted to one of the following compulsory dispute settlement mechanisms if peaceful means fail: i) the International Tribunal for the Law of the Sea (ITLOS) in Hamburg; ii) the International Court of Justice (ICJ) in The Hague; iii) an Arbitral Tribunal in accordance with the Convention's Annex VII, which is the default option if no other method is chosen; or iv) a Special Arbitral Tribunal in accordance with the Convention's Annex VIII for particular technical disputes, e.g. relating to fisheries and the marine environment. Arbitration can be handled under the

Permanent Court of Arbitration (PCA) in The Hague, which provides dispute resolution services to the international community.

Hence, the management system incorporates or is subject by law to mechanisms for the resolution of legal disputes arising within the system. SG60 is met.

The mechanisms are transparent in that any cases before national courts or international courts or tribunals would be publicly announced, and consultations within CCSBT are transparent in that protocols and meeting minutes refer deliberations between parties and not only conclusions of discussions. The mechanisms are considered to be effective in dealing with most issues and are appropriate to the context of the UoA. This takes account of the fact that disputes are generally resolved within the established governance structure, primarily through consultation. SG80 is met.

The global dispute resolution mechanisms have generally been little used in fisheries disputes and more in jurisdictional disputes, but ITLOS Cases 3 and 4 concerned a fisheries dispute between Australia and New Zealand on the one hand and Japan on the other on the management of SBT (ITLOS 1999). However, these cases were limited in scope to the use of provisional measures according to UNCLOS Article 290. Following ITLOS's provisional measures, the parties proceeded with the formation of a UNCLOS Annex VII arbitral tribunal to settle the substantive legal issues. The tribunal, however, decided it did not have jurisdiction in the case as the dispute had arisen within CCSBT and should have been settled using the dispute resolution mechanisms in that RFMO (Southern Bluefin Tuna Case 2000). In general, ITLOS has primarily been used to settle disputes on provisional measures and the prompt release of vessels following arrest in accordance with UNCLOS Article 292. It has not been tested and proven to be effective in solving disputes that more typically arise in international fisheries management, such as disputes between states on fishing rights, regulatory measures or enforcement and compliance. The last performance review of CCSBT concluded with regard to dispute settlement that 'CCSBT should seriously consider developing an alternative approach to dispute settlement/conflict resolution to avoid the potential for future stalemates that could significantly compromise the conservation and management of SBT resources (Sinan et al. 2021, p. 25)'. SG100 is not met.

3.1.1.c Respect for rights		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

Mechanisms to commit to the rights of people dependent on fishing for food and livelihood may exist at both national level in the flag states and at international level in CCSBT. The management system of coastal states (which are not flag states in the fishery) is less relevant here. It is normally the combined effects of measures at national and international level that have to be assessed, although it is possible that measures at just one of these levels are sufficient to reach a specific guidepost.

Among the criteria for quota allocation listed in the CCSBT Convention are the interests of parties that have SBT migrating through its exclusive economic or fishery zone (CCSBT 1993, Art. 8(4)(c)),

and the interests of parties whose vessels engage in fishing for SBT or have historically done so (Art. 8(4)(d)).

The fact that historical catches is a key criterion in TAC allocation ensures that 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. SG60 is met.

As these rights are not only 'considered' (which reflects the SG60 requirement of these rights being respected; cf. SA4.3.6) but are 'observed' in the sense that there are formal arrangements in place within the legal system to secure them (cf. SA4.3.7), such as the quota allocation scheme (CCSBT 2023). SG80 is met.

Since quota allocation is fixed between CCSBT members, there is a mechanism to formally commit to the historical rights states fishing for SBT. However, the historical rights criterion is rather general and does not necessarily ensure that the rights of all people dependent on fishing are protected. As noted by Seto et al. (2020), CCSBT on the one hand has the most developed allocation practice of all the tuna RFMOs, and on the other hand the least developed precisely since the criteria are so general. While it appears that the rights of people dependent on fishing for food or livelihood are generally observed in practice, they are not fully committed to due to the vagueness of the formal criteria. SG100 is not met.

All SG60 and SG80 were met, and 0 out of 3 SG100 were met.

PI 3.1.1 : 80

References

CCSBT 1993. Text of the Convention for the Conservation of Southern Bluefin Tuna (in force 1994) (https://www.ccsbt.org/sites/default/files/userfiles/file/docs_english/basic_documents/convention.pdf).

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CCSBT 2018a. Rules of Procedure of the Commission for the Conservation of Southern Bluefin Tuna (https://www.ccsbt.org/sites/default/files/userfiles/file/docs_english/basic_documents/rules_of_procedure_of_the_commission.pdf).

CCSBT 2023a. Strategic Plan for the Commission for the Conservation of Southern Bluefin Tuna 2023–2028 (https://www.ccsbt.org/sites/default/files/userfiles/file/docs_english/operational_resolutions/CCSBT_Strategic_Plan.pdf).

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CCSBT 2025a. Operational Resolutions and other Important Documents (https://www.ccsbt.org/en/content/operational-resolutions-and-other-important-documents).

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P.3.1.2 Consultation, roles and responsibilities

3.1.2.a Roles and responsibilities		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

The requirements under this SI must be met for both the international level and for the national management system in the relevant flag states. In the following, it is assumed that SG100 is met for the national level, so the final score will depend on how the international level is assessed. The management system of coastal states (which are not flag states in the fishery) is less relevant for this PI.

Functions, roles and responsibilities are explicitly defined within CCSBT. Convention Articles 8, 9 and 10 provide information on the functions, roles and responsibilities of the Commission (CCSBT 1993, Art. 8), the Scientific Committee (Art. 9) and the Secretariat (Art. 10). The Rules of Procedure for the Commission provide further information on the application process for observers and co-operating non-members and their roles (CCSBT 2018, Rule 3 and 3A), as well as the Chair and Vice-Chair of the Commission (Rule 4), the Scientific Committee (Rule 8) and the Secretariat (Rule 9). The Extended Commission and Extended Scientific Committee were established to facilitate the participation of the fishing entity of Taiwan, and further rules of procedure were established in that regard (CCSBT 2013a). The CCSBT Compliance Plan outlines in Part 3 the roles and responsibilities of members, the Commission, the Compliance Committee and the Secretariat in monitoring, control and surveillance (MCS) and in the implementation of the Plan (CCSBT 2019). The terms of reference for CCSBT subsidiary bodies are found in CCSBT (2013b).

CCSBT has established cooperation with the other tuna RFMOs to improve coordination, promote consistency in management measures, and enhance monitoring and control of tuna fisheries. Definition of functions, roles and responsibilities are found in general Memorandums of Understanding (MoUs) on cooperation and more specialised MoUs, such as related to MCS. See, e.g., CCSBT/WCPFC (2009).

Hence, organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are generally understood. SG60 is met.

Since they are described in international treaty and national legislation in flag states, the functions, roles and responsibilities are explicitly defined and well understood for key areas or responsibility and interaction. SG80 is met.

It is a principal and methodological challenge to conclude that functions, roles and responsibilities are well understood for *all* areas of responsibility and interaction, and a precautionary scoring warrants the conclusion that SG100 is not met. The highest performance level may be achieved, however, if the assessment team probes thoroughly into stakeholders' understanding of functions, roles and responsibilities during the assessment and at the site visit, in particular.

3.1.2.b Consultation processes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 accep**t 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**.

As mentioned under SI 3.1.1a above, membership of the Commission is open to any state whose vessels engage in fishing for SBT and any other coastal state whose jurisdiction the stock migrates through. To become a member or cooperating non-member of the Extended Commission, the relevant regional economic integration organisation, entity or fishing entity must have caught SBT at any time in the previous three calendar years.

States harvesting SBT or having the stock in waters under its national jurisdiction which are not members or cooperating non-members of the Extended Commission, may be invited to meetings in the (Extended) Commission and (Extended) Scientific Committee (CCSBT 1993, Art. 14(1)). According to the Convention, the Commission may also invite inter-governmental organisations (IGOs) or, on request, non-governmental organisations (NGOs) that have special competence concerning SBT to send observers to meetings of the Commission (Art. 14(2)). According to its Rules of Procedure (CCSBT 2018), the Commission may also grant long-term observer status to states, entities, IGOs and NGOs (Rule 3, Art. 3). Observers may take part in meetings in the Commission (and its subsidiary bodies, where relevant) unless a member requests that a particular agenda item is restricted to members (Rule 3, Art. 8), but they may not vote (Rule 3, Art. 9). Observers are also allowed to submit written documents (Rule 3, Art. 10).

As per 2025, five IGOs have long-term observer status for CCSBT meetings (CCSBT 2025): the Agreement on the Conservation of Albatrosses and Petrels (ACAP), the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), the International Commission for the Conservation of Atlantic Tunas (ICCAT), the Indian Ocean Tuna Commission (IOTC) and the Western and Central Pacific Fisheries Commission (WCPFC). These have access to meetings in the Extended Commission, the Extended Scientific Committee, the Compliance Committee and the Ecologically Related Species Working Group. WCPFC in addition has access to the Strategy and Fisheries Management Working Group. Further, six NGOs have status as long-term observers: BirdLife International, Humane Society International (HSI Int.), Pew Charitable Trust, TRAFFIC, WWF Australia

and the Tuna Compliance Network. All of these have access to the Compliance Committee, and most of them (all except the Tuna Compliance Network) have access to the Extended Commission. All except Pew and the Tuna Compliance Network have access to the Ecologically Related Species Working Group, while (unlike the IGOs) none of them are allowed to take part in meetings in the Extended Scientific Committee or the Strategy and Fisheries Management Working Group. At the last Commission meeting in 2024, only Seychelles, WCPFC, BirdLife International and Pew were listed as participating observers (CCSBT 2024, Attachment 1).

Hence, the management system includes consultation processes that obtain relevant information from the main affected parties, including local knowledge, to inform the management system. This happens through the established consultation mechanisms at national and international level. SG60 is met.

Consultations take place on a regular basis, and the management system demonstrates consideration of the information obtained, as reflected in protocols and minutes from meetings. The requirement here is not that the authorities necessarily accept the positions of stakeholders, but that they allow them to be presented and listened to. SG80 is met.

It cannot be concluded by default that the management system explains how information obtained from stakeholders is used or not used. SG100 is not met. The highest performance level may be achieved, however, if the assessment team probes thoroughly into stakeholders' perceptions of the adequacy of information from the management system during the assessment and at the site visit, in particular.

3.1.2.c Participation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

As follows from SI 3.1.2b above, the consultation process provides opportunity for all interested and affected partis to be involved in Commission and subsidiary body meetings in CCSBT, where there is extensive stakeholder participation. SG80 is met.

Organisations with an interest in the fishery are not only given the opportunity to be involved. They are actively encouraged, and their participation is facilitated by CCSBT, e.g. in connection with meetings in the Commission and the subsidiary bodies. The fact that the most relevant stakeholders have been granted status as long-term observer streamlines the process of participation and gives it predictability. SG100 is met.

All SG60 and SG80 were met, and 1 out of 3 SG100 were met.

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References

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P.3.1.3 Longterm objectives

3.1.3.a Objectives		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 the MSC Fisheries Standard and the **precautionary approach**, are **explicit** within **management policy**.	**Clear** long-term objectives that guide decision-making, consistent with the MSC Fisheries Standard and the **precautionary approach**, are **explicit** within **and required by** management policy.

This PI also sets requirements that have to be met for both the international and national management systems, for the latter including all flag and coastal states.

The objective of CCSBT is to ensure the conservation and optimum utilisation of SBT (CCSBT 1993, Art. 3). The CCSBT Convention was developed before the UN Fish Stocks Agreement (UNFSA 1995) and the FAO Code of Conduct for Responsible Fisheries (FAO 1995), which introduced the precautionary approach in international fisheries law, so this concept is not explicitly mentioned in the Convention. Nor is it mentioned in other strategic documents and resolutions, such as the Resolution on the Total Allowable Catch and Future Management of Southern Bluefin Tuna (CCSBT 2009), the Resolution on the Adoption of a Management Procedure (CCSBT 2019b), the CCSBT Strategic Plan 2023–2028 (CCSBT 2023a) or the Resolution to Align CCSBT's Ecologically Related Species Measures with those of Other Tuna RFMOs (CCSBT 2024a).

However, the requirement in this PI is not that the precautionary approach as such is implicit (SG60), explicit (SG80) or required by (SG100) management policy, but that objectives *consistent with* the precautionary approach (and the MSC Fisheries Standard) are present. The FAO operationalised the precautionary approach in its Technical Guidelines for Responsible Fisheries No. 2 (FAO 1996). Management according to the precautionary approach is here defined as exercising 'prudent foresight to avoid unacceptable or undesirable situations' (Para. 19), establishing 'legal or social management frameworks for all fisheries [including] rules controlling access to fisheries (e.g., all boats must be licensed), data-reporting requirements, and processes for planning and implementing more comprehensive fishery management' (Para. 20), and taking 'explicit consideration of

undesirable and potentially unacceptable outcomes and [providing] contingency and other plans to avoid or mitigate such outcomes' (Para. 22). The way the CCSBT has operationalised its objective of ensuring the conservation and optimum utilisation of SBT in the resolutions and other management documents listed above (CCSBT 2009, 2019b, 2023a and 2024a) meets the FAO requirements of a precautionary approach to fisheries management. Hence, it is *consistent with* the precautionary approach.

Clear long-term objectives that guide decision-making, consistent with the MSC Fisheries Standard and the precautionary approach, are therefore explicit within management policy. SG60 and SG80 are met.

It cannot be concluded that these objectives are required by management policy. SG100 is not met.

All SG60 and SG80 were met, and 0 out of 1 SG100 were met.

PI 3.1.3 : 80

References

CCSBT 1993. Text of the Convention for the Conservation of Southern Bluefin Tuna (in force 1994) (https://www.ccsbt.org/sites/default/files/userfiles/file/docs_english/basic_documents/convention.pdf).

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3.2 Fishery Specific Management System

P.3.2.1 Fishery-specific objectives

3.2.1.a Objectives		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Objectives, which are broadly consistent with achieving the outcomes expressed by MSC Principles 1 and 2, are **implicit** within the fishery-specific management system.	**Short and long-term objectives**, which are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, are **explicit** within the fishery-specific management system.	**Well-defined and measurable short- and long-term objectives**, which are demonstrably consistent with achieving the outcomes expressed by MSC Principles 1 and 2, are **explicit** within the fishery-specific management system.

Fishery-specific objectives are normally found at RFMO level, although they may be supplemented by (and usually implemented in) national legislation in flag and/or coastal states. It is sufficient that fishery-specific objectives are found explicitly at one of these levels as long as they are intended to apply (or in practice apply) to the other level as well.

As mentioned under PI 3.1.3 above, the overarching objective of the CCSBT is to ensure the conservation and optimum utilisation of SBT (CCSBT 1993, Art. 3).

In the Resolution on the Total Allowable Catch and Future Management of Southern Bluefin Tuna, an objective was stated to rebuild the status of stock to an interim rebuilding target reference point of 20 % of the original spawning biomass within a reasonable timeframe (CCSBT 2009, Preamble). CCSBT has adopted explicit operational management objectives for its target species through the adoption of a Management Procedure (MP) (CCSBT 2019b). The aim of the MP (in line with the Cape Town Procedure), which guides the TAC setting process is to have at least a 70 % probability of rebuilding the SBT stock to an interim building target reference point of 20 % of the original spawning stock biomass by 2035 and have a 50 % probability of achieving a biomass level of 30 % of the original spawning stock biomass by 2035 (ibid.). While the revised target reference point (30%B_0 by 2035) is not consistent with the MSC requirements under P1 (B_{MSY}, which is estimated to be ~35%B_0), there is clear evidence that the stock is rebuilding and that the target (30%B_0 by 2035) is not to be regarded as a definitive end to rebuilding of the stock, given the fact that the CCSBT Strategic Plan 2023–2020 has an explicit goal of rebuilding SBT to a biomass level that supports the maximum sustainable yield (MSY) (CCSBT 2023a).

In its Recommendation to Mitigate the Impact on Ecologically Related Species of Fishing for Southern Bluefin Tuna (CCSBT 2019c), the Commission encourages members to implement the International Plan of Action for Reducing Incidental Catches of Seabirds in Longline Fisheries (IPOA-Seabirds), the International Plan of Action for the Conservation and Management of Sharks (IPOA-Sharks) and the FAO Guidelines to reduce sea turtle mortality in fishing operations (FAO-Sea turtles), if they have not already done so (Art. 1). CCSBT has also introduced the Resolution to Align CCSBT's Ecologically Related Species Measures with those of Other Tuna RFMOs (CCSBT 2024a), requiring members to ensure that vessels flying their flag and fishing for SBT in an area of competence of another RFMO comply with all their ecologically related species measures in force.

There is also a Multi-Year Seabird Strategy (CCSBT 2024b) whose overall objective is to reduce or eliminate seabird bycatch, such that SBT fisheries do not impose a significant adverse impact on seabirds. To achieve the overall objective, five more specific objectives have been developed: i) to reduce the level of impact of seabird bycatch by SBT fishing operations on seabird populations; ii) to

ensure the collection of timely, reliable, representative data to support accurate regular estimations of total seabird mortality in SBT fisheries and its impact on seabird populations; iii) to develop and refine, in collaboration with industry and ACAP, practical, cost-effective and safe seabird bycatch mitigation technologies and techniques; iv) to develop and refine compliance approaches to ensure fleet-wide compliance with seabird bycatch mitigation measures required while conducting fishing for SBT; and v) to enhance education and outreach programmes highlighting the importance of mitigating seabird interactions while fishing, and advocating effective implementation of mitigation measures.

Hence, objectives which are broadly consistent with achieving the outcomes expressed by MSC Principles 1 and 2, are at least implicit within the fishery-specific management system. SG60 is met.

These objectives are explicit, and they are short- and long-term. Long-term objectives are to maintain stocks at sustainable levels and minimise the fishery's impact on the wider ecosystem. Short-term objectives include keeping annual catches within the set catch limits. SG80 is met.

P1 objectives are well-defined and measurable, but P2 objectives are less so, may only warrant a partial score at SG100.

All SG60 and SG80 were met, and 0 out of 1 SG100 were met.

PI 3.2.1 : 80

References

CCSBT 1993. Text of the Convention for the Conservation of Southern Bluefin Tuna (in force 1994) (https://www.ccsbt.org/sites/default/files/userfiles/file/docs_english/basic_documents/convention.pdf).

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CCSBT 2024b. Multi-Year Seabird Strategy (https://www.ccsbt.org/sites/default/files/userfiles/file/docs_english/operational_resolutions/MultiYear_Seabird_Strategy.pdf).

P.3.2.2 Decision-making processes

3.2.2.a Decision-making processes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There are **some** decision-making processes in place that result in **measures** and **strategies** to achieve the fishery-specific objectives.	There are **established** decision-making processes that result in **measures** and **strategies** to achieve the fishery-specific objectives.	

This PI applies mainly to decision-making processes at RFMO level. Decision-making processes at national level may be relevant, but this level does not necessarily have to be assessed if decisions on management measures are mainly made at the international level.

The main decision-making rules are found in the CCSBT Convention (CCSBT 1993): decisions are made by consensus (Art. 7), with two-thirds of the parties as quorum (ibid., Art. 6(7)). Detailed rules of procedure for the Commission and the Extended Commission are found in CCSBT (2018a) and CCSBT (2013a), respectively. Importantly, TACs are set and management measures implemented on an annual basis through Resolutions on science, management of SBT and ecologically related species, and MCS (CCSBT 2024a, 2024c, 2025a).

Hence, there are some decision-making processes in place that result in measures and strategies to achieve the fishery-specific objectives. SG60 is met.

The decision-making processes are established in the sense that they can be immediately triggered for fisheries-related issues, have been triggered in the past and have led to decisions about sustainability in the fishery (GSA4.8). Examples of that is how the shortcomings identified in performance reviews have been followed up by the Commission and how CMMs are issued to address challenges related to stock status, ecosystem impact and IUU fishing identified by the Commission and its subsidiary bodies. Further, decision-making procedures are recognised by stakeholders in the fishery and have proved durable (GSA4.8). SG80 is met.

3.2.2.b Responsiveness of decision-making processes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

It follows from the above that 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. This is evident in the interaction between the Commission its subsidiary bodies, where problems can either be identified by the Commission and referred to one of the committees or technical working groups for further investigation, or identified by one of the subsidiary bodies and referred to the Commission for high-level discussions and decision making. As follows from the long list of Resolutions on issues related

to target stock management, ecosystem impact and compliance challenges, this includes both serious and other important issues (CCSBT 2025a). Many of the recommendations of the three performance review reports have been followed up, e.g. in the ensuring strategic plans (CCSBT 2023a).

Importantly, CCSBT has addressed the serious issue of rebuilding an overfished target stock through the development of the management procedure (MP) (harvest control rule) (CCSBT 2019b). The MP adjusts the exploitation rate according to stock status and has ensured that the stock is rebuilding towards agreed targets. CCSBT has also addressed the serious issue of ensuring that its members' vessels comply with pre-existing management measures in other RFMOs' Areas of Competence (Sinan et al. 2021), which was identified in the 2014 performance review as lacking (Garcia and Koehler 2014). Other responses to performance review findings are improvements of the vessel monitoring system (VMS) to ensure provisions are made for baseline standards that apply to SBT vessel regardless of their area of operation (CCSBT 2017), as well as the publishing of all meeting documents on the CCSBT website.

Processes are transparent in that detailed minutes from meetings are publicly available (see SI 3.2.2d below), and they are adaptive in that decisions are evaluated by the various specialist meetings and feedback is provided to the Commission. SG60 and SG80 are met.

It cannot concluded that *all* issues are necessarily responded to in a timely and adaptive manner. A precautionary scoring warrants the conclusion that SG100 is not met.

3.2.2.c Use of precautionary approach		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	Decision-making processes use the **precautionary approach** and are based on best available information.	

CCSBT has chosen to adopt the precautionary approach through its management procedure (MP) rather than amend its original Convention. Previously termed the Bali Procedure for setting TACs to 2020, the MP was replaced by the Cape Town Procedure for setting TACs from 2021 (CCSBT 2019b). This MP is inherently precautionary through checking robustness to scientific uncertainties in the testing process (Aranda et al., 2010). The MP coupled with the analysis of fishery indicators and triennial in-depth stock assessment led to Garcia and Koehler (2014) recommending that this represented best practice for RFMO decision-making and implementing the precautionary approach to stock management. The implementation of the Resolution to Align CCSBT's Ecologically Related Species Measures with those of Other Tuna RFMOs (CCSBT 2024a) is another example of the precautionary approach being used in decision making, through ensuring CMMs from other RFMOs are binding on a member's vessels when fishing in another RFMO's area of competence.

The management processes also provide opportunity for using the best available scientific information through the establishment of an independent advisory panel, which provides external input to CCSBT's stock assessment and scientific processes. Similarly, the Working Group on Ecologically Related Species (ERSWG) provides valuable information and research advice on the nature and extent of interactions with ecologically related species, the impact of SBT fishing on ecologically related species and assessment of current and potential measures to reduce captures of such species. The requirement to use the best scientific information in other areas is also evidenced through the large number of meetings and working groups that have been conducted and reports written for the Commission (CCSBT 2025c), which provide analyses and advice based on all available information.

Overall, CCSBT decision-making processes are based on the best available information and the precautionary approach. SG80 is met.

3.2.2.d Accountability and transparency of management system and decision-making process		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Some information on the fishery's performance and management action is generally available on request to stakeholders.	**Information on the fishery's performance and management action is available on request**, and explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation, and review activity.	Formal reporting to all interested stakeholders **provides comprehensive information on the fishery's performance and management actions** and describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation, and review activity.

The CCSBT website has extensive information on the working of the Commission and its subsidiary bodies, such as detailed meeting documents. As this includes at least at least general summaries of information on allocation, compliance and fisheries management decisions (SA4.8.4.1), SG60 is met.

In the detailed protocols and minutes from meetings in the Commission and its subsidiary bodies, explanations are provided for action or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity. This is ensured, for instance, by the practice of providing the views of all members with an opinion on a matter instead of just the conclusions of discussions. SG80 is met.

The posting of protocols and minutes amounts to formal reporting to all interested stakeholders as much as distribution by post or email would have done. The detailed information provided in these documents, reflecting the views of all states that take part in a discussion, can be characterised as relatively comprehensive, but some information, e.g. on inspections and infringements, is quite scattered. SG100 is not met.

3.2.2.e Approach to disputes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 of the fishery.	The management system or UoA is attempting to comply in a timely fashion with judicial decisions arising from any legal challenges.	The management system or UoA acts proactively to avoid legal disputes or rapidly implements judicial decisions arising from legal challenges.

The management authority and the fishery are not subject to continuing court challenges. Nor are they indicating a disrespect of defiance of the law by repeatedly violating the same law or regulation necessary for the sustainability of the fishery. SG60 is met.

If taken to court by fishing companies, the management authority will comply with the judicial decision in a timely manner in accordance with the formal procedures laid down in the fisheries acts and general legislation on the distribution of power in each flag/coastal state. This includes that if management authorities lose a court case, they will accept the verdict. SG80 is met.

The management authority works proactively to avoid legal disputes through the tight cooperation with user-groups and other stakeholders at the regulatory level, ensuring as high legitimacy as possible for regulations and other management decisions; see SI 3.1.2b above. SG100 is met.

All SG60 and SG80 were met, and 1 out of 3 SG100 were met.

PI 3.2.2 : 85

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P.3.2.3 Compliance and enforcement

3.2.3.a MCS system		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
MCS **mechanisms** exist within the UoA.	An MCS **system** exists within the UoA.	A **comprehensive** MCS system is well-established within the UoA.

Monitoring, control and enforcement (MCS) is undertaken by states since it is states that have the jurisdiction to do so and that possess and operate patrol vessels. Coastal states have exclusive MCS jurisdiction in waters under national jurisdiction (internal waters, territorial sea and EEZ), while only flag states have traditionally had the jurisdiction to enforce regulations for vessels flying their flag on the high seas. The UN Fish Stocks Agreements changed this by mandating RFMOs to allow for any convention party to conduct inspections of any fishing vessels on the high seas within the respective convention area (UNFSA 1995, Art. 21(1)).

The CCSBT has adopted a Compliance Plan (CCSBT 2019a) which supports its Strategic Plan (CCSBT 2023a) and provides a framework for the CCSBT and its members and cooperating non-members to improve compliance with CMMs and address compliance risks. The Compliance Plan includes a Compliance Action Plan (CCSBT 2025d) which defines specific activities to address the identified priority compliance risks.

CCSBT aims to ensure compliance through its MCS system comprising of: i) a record of approved vessels and farms; ii) an IUU vessel list; iii) a vessel monitoring system (VMS); iv) a catch documentation scheme (CDS); v) port state measures; vi) a transhipment monitoring program; and vii) at-sea observer monitoring. Followingly, CCSBT has:

- a list of fishing vessels and list of carrier vessels that are authorised to fish for and carry SBT (CCSBT 2023c). It also has a list of authorised farms (CCSBT 2010). Members and cooperating non-members of the CCSBT will not allow the landing or trade of SBT caught by fishing vessels/harvested from farms, or transhipped to carrier vessels that are not on these lists.
- an IUU list (CCSBT 2019d) to identify vessels that have engaged in fishing for SBT in a manner which has undermined the effectiveness of the Convention and CCSBT Resolutions in force. The list is updated to allow cross-listing of vessels from other RFMOs, meaning measures against IUU fishing vessels apply equally to vessels listed by any RFMO (as detailed in paragraphs 26-32 of the Resolution).
- a VMS programme (CCSBT 2017), which requires members and cooperating non-members with vessels fishing for SBT to adopt and implement VMS and comply with the requirements

of other tuna RFMOs in the respective Convention Area in which the fishing is being conducted.

- a programme regulating transshipment (CCSBT 2024e), which monitors transhipments both at sea and in port and is harmonised and operated in conjunction with those of ICCAT and IOTC to avoid duplication of the same measure. Furthermore, ICCAT or IOTC observers on a transhipment vessel that is authorised to receive SBT are deemed to be CCSBT observers provided that the CCSBT standards are met.
- a catch documentation scheme (CDS) (CCSBT 2021a), which provides for tracking and validation of SBT product from catch to the point of first sale on domestic or export markets. As part of the CDS, all transhipments, landings of domestic product, exports, imports and re-exports of SBT must be accompanied by appropriate documentation. Similarly, transfers of SBT into and between farms must be documented. In addition, each whole SBT that is transhipped, landed as domestic product, exported, imported or re-exported must have a uniquely numbered tag attached to it and documented.
- some port state measures (CCSBT 2018b) applying to foreign fishing vessels, including carrier vessels other than container vessels.

Hence, MCS mechanisms exist within the UoA. SG60 is met.

The mechanisms qualify as a system. SG80 is met.

The additional requirement at SG100 is that the system is comprehensive. There is not sufficient evidence of physical inspections both at sea and on shore to conclude that this is the case here. One of the recommendations of the last performance review of CCSBT was to establish a high seas boarding and inspection scheme, indicating that current inspection mode and coverage are insufficient. SG100 is not met.

3.2.3.b Sanctions		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Sanctions to address non-compliance exist within the UoA.	Sanctions to deal with non-compliance exist, that are appropriate to the UoA, and are applied.	Comprehensive sanctions to address non-compliance exist, that are appropriate to the UoA, and are consistently applied.

As follows from the above, sanctions for infringements committed in the CCSBT Convention Area must be imposed by the flag state. The only exception is if UoA catch is landed in other states than the flag state, in which case the port state may impose sanctions if domestic legislation is violated.

Sanctions are applied to vessels that violate fishing regulations. CCSBT notifies flag states of non-compliant vessels, which the flag states then order to withdraw from the Convention Area.

The blacklisting of non-member vessels (IUU lists) has become a widespread practice among all RFMOs, including CCSBT (CCSBT 2019d).

Sanctions to address non-compliance exist at national level in flag states that take part in the fishery. SG60 is met. Information on sanctions in the fishery are usually provided by the inspecting states, although other sources of information may also exist.

There is also evidence from flag states that sanctions are applied and that they are appropriate to the UoA. SG80 is met.

There is not sufficient evidence to conclude that comprehensive sanctions exist and are consistently applied. SG100 is not met. However, this highest performance score may be achieved for some fisheries, depending on data available on sanctions in the respective flag and port states.

3.2.3.c Compliance (information)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Information is adequate to **broadly understand** compliance in the UoA.	Information is adequate to **estimate** compliance in the UoA with a **high degree of accuracy**.	Information is adequate to **estimate** compliance in the UoA with a **very high degree of accuracy**.

The Evidence Requirement Framework (ERF) must be applied in assessing this SI (MSC Fisheries Standard Toolbox v1.2). To evaluate the trueness of the information available on compliance in the fishery, the level of bias and how it is mitigated must be determined using the Objectivity, Relevance, Completeness and Consistency (ORCC) test. The fishery is then scored against three Trueness Guideposts (TG 1, 2 and 3), which correspond to the scoring guideposts at SG60, SG80 and SG100.

For the fishery to meet SG60, information must be adequate to broadly understand compliance in the fishery, which under TG1 is defined as follows: 'There is potential for bias to exist in the information, but its effect on trueness can be anticipated and is not considered to be consequential.' It is not a priori possible to know what kind of information on compliance will be available in specific MSC assessments. Typically, that will be, at best, numbers of inspections and infringements provided by the relevant enforcement agency – often, it is just a more general statement by the authorities on the general level of compliance in the fishery. Using the ORCC test, such information will score relatively high on the objectivity indicator since the information comes from independent verification by enforcement agencies. The information will normally also be relevant, but very rarely does such information have a high level of detail, e.g. on numbers of infringements with different types of regulations by different types of vessels. Information will then seldom score highly on the completeness indicator, and with limited sources it is difficult to assess the information against the consistency indicator. In sum, it might be concluded that the effects of bias on trueness can be anticipated and are not considered to be consequential; hence, TG1 is met. This corresponds to an SG60 score, and it can be concluded that information is adequate to broadly understand compliance in the UoA. SG60 is met. It must be emphasised that this presupposes the existence of at least some independent information on compliance in the fishery, notably from national enforcement agencies. If there is no independently verified information on compliance, but, for instance, only information provided by the clients themselves, the fishery will score lowly also on the objectivity indicator, and TG1/SG60 might not be met.

It should be noted that an SG60 score is not guaranteed for CCSBT. The second performance review of CCSBT noted that very limited information is available on vessel compliance, as the Compliance Committee primarily focuses on reviewing Contracting Parties' compliance with data submission to CCSBT.

To achieve an SG80 score, information must be adequate to estimate compliance in the UoA with a high degree of accuracy. To meet the TG2 requirement under the ERF, there must be limited potential for bias in the information, and where it might exist, its effect on trueness must be broadly understood, and it must not be considered consequential. Based on what kind of information is typically available on compliance in the RFMO-managed tuna fisheries, this requirement is not likely to be met. If information may be relatively objective and relevant, it will seldom be complete, which requires detailed inspection and infringement statistics preferably corroborated by other sources of information such as independent reviews or research, which also makes it difficult to assess consistency (between sources of information). It cannot be concluded that information is adequate to estimate compliance in the UoA with a high degree of accuracy. SG80 is not met.

3.2.3.d Compliance (outcome)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Systematic non-compliance of regulations specific to governing sustainable fishing practices on the water is not evident within the UoA.	Majority of regulations, including all regulations specific to governing sustainable fishing practices on the water, are **likely** to be complied with.	Majority of regulations, including all regulations specific to governing sustainable fishing practices on the water, are **consistently** complied with.

As said above, information on compliance must come from national enforcement agencies. Limited information on fisher/vessel compliance is publicly available on the CCSBT website, as well as in the most recent performance review (Sinan et al. 2021) as most compliance information relates to state compliance with CCSBT requirements.

As per November 2024, there are 157 vessels on the CCSBT IUU vessel list, all of which have been transferred from the IUU lists of other RFMO rather than originating on the CCSBT list (CCSBT 2024f). The vast majority have unknown flag. 14 are flagged to India, which is more than half of those with known flag.

An overview of catch taken in excess of national quota allocations is available on the CCSBT website, but it has not been updated since 2021 (CCSBT 2021b). If anything, the list shows that there is good overview of actual catches (to the extent the list is correct), i.e. reporting requirements are complied with at both vessel and state level. It also shows that the payback arrangement, whereby catch taken in excess of annual allocation is deducted from the member's quota the following year, is partly working (some states have 'paid back', others have not).

In 2019, a PEW analysis of AIS data raised the possibility that many at-sea transhipments involving transfers of SBT went unreported in 2017 (PEW 2019). However, because many of identified possible unreported interactions involved vessels that were authorised to other RFMOs, it was difficult to say if this was definitive evidence of illegal activity. Similarly, Trygg Mat Tracking (TMT) undertook a pilot SBT IUU risk assessment using AIS data, overlaid with vessel identity and ownership information, of CCSBT and other RFMO catch data in order to try and identify vessel operations that could be considered high risk for SBT IUU fishing (Trygg Mat Tracking 2019). However, because most of the tuna longliners that were identified operating in the area of interest were authorised to the same other RFMO as in the Pew study, documenting SBT IUU by the use of AIS data proved challenging.

While there might have been compliance issues in CCSBT fisheries, these do not seem to constitute systematic non-compliance. SG60 is met. It should be noted, however, that this is no guarantee that SG60 will be met in each MSC assessment; there might well appear information on systematic non-compliance in specific assessments/UoAs.

There is not enough evidence to conclude that the majority of regulations, including all regulations specific to governing sustainable fishing practices on the water (such as catch limits and gear and area regulations), are likely to be complied with. Notably, information on compliance *rates*, which require information about both the number of inspections and the number of detected infringements, is not readily available, if at all. SG80 is not met.

All SG60 were met, and 2 out of 4 SG80 were met.

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P.3.2.4 Monitoring and management performance evaluation

3.2.4.a Evaluation coverage		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There are mechanisms in place to evaluate **some** parts of the fishery-specific management system.	There are mechanisms in place to evaluate **key** parts of the fishery-specific management system.	There are mechanisms in place to evaluate **all** parts of the fishery-specific management system.

CCSBT has extensive mechanisms in place to evaluate the management system as demonstrated by the various committees, panels and working groups that meet regularly and report their findings to the Commission. Reports from meetings of the various bodies are available on the CCSBT website. Key CMMs are reviewed annually.

In 2007, the five tuna RFMOs agreed to undertake periodic reviews of performance against their objectives, and CCSBT has undertaken three such reviews. The first performance review was two-tiered: the main report (CCSBT 2008a) was produced by an internal working group chaired by the CCSBT Secretariat with members from Australia (2), Japan (1), New Zealand (1) and Indonesia (1), and then an independent expert provided comments to the report in a Part II (CCSBT 2008b). The review covered conservation and management (including data collection and sharing, quality and provision of scientific advice, adoption of CMMs and allocation of fishing rights), compliance and enforcement, decision making and dispute settlement, international cooperation, and financial and administrative issues. The second performance review came in 2014 (Garcia and Koehler 2014). This time it was undertaken by two independent experts: the Chair of the Fisheries Expert Group of the IUCN Commission on Ecosystem Management (IUCN-CEM-FEG) and Vice President for Policy and Outreach at the International Seafood Sustainability Foundation (ISSF). The structure of the report was similar to that of the first performance review. Finally, the third performance review was completed in 2021 (Sinan et al. 2021), this time structured with sections on conservation and management, compliance and enforcement, international cooperation, cooperation with other RFMOs, and financial and administrative issues. Hence, the coverage of all three reviews is very broad.

The performance reviews are supplemented by a range of other on-going internal and external review processes within the CCSBT system. Regular internal reviews are undertaken of the implementation and performance of CMMs through annual reports submitted by members to the Commission, Scientific Committee and Compliance Committee. Recommendations from the performance reviews are also followed up by the subsidiary bodies and provide important input to the rolling strategic plans (CCSBT 2023a). Independent reviews of members' management systems are conducted through CCSBT's Quality Assurance Review programme to ensure they continue to meet CCSBT's minimum performance requirements and provide recommendations on areas needing improvement (CCSBT 2024g). The Compliance Action Plan within CCSBT Compliance Plan is reviewed annually by the Compliance Committee to assess risks (CCSBT 2025d).

Hence, there are mechanisms in place to evaluate some parts of the fishery-specific management system. SG60 is met.

The issues subject to review are comprehensive and include key parts of the fishery-specific management system. SG80 is met.

The broad coverage of the performance reviews, supplemented by the multitude of other review processes, ensures that there are mechanisms in place to evaluate all parts of the fishery-specific management system. SG100 is met.

3.2.4.b Internal and/or external review		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The fishery-specific management system is subject to **occasional internal** review.	The fishery-specific management system is subject to **regular internal** and **occasional external review**.	The fishery-specific management system is subject to **regular** internal and external review.

While SI 3.2.4a concerns review coverage, SI 3.2.4b sets requirements for the frequency with which reviews, internal and external, take place. Reviews can be conducted at either national or international level as long as the essential parts of the fishery-specific management system. For all practical purposes, the UoA fishery is managed at RFMO level, with national regulations implementing RFMO decisions and sometimes supplementing them. Since national legislation must at least give effect to decisions made at RFMO level, reviews at RFMO level will qualify as reviews of the fishery-specific management system without necessitating separate reviews at national level.

As noted under SI 3.2.4a above, the 2008, 2014 and 2021 performance reviews of CCSBT were formal external performance reviews that were conducted and have evaluated all parts of the management system (CCSBT 2008a, 2008b; Garcia and Koehler 2014; Sinan et al. 2021). These are supplemented by a range of other regular internal and external review processes, including internal review of members' implementation of CMMs and external review of their management systems and performance.

Hence, CCSBT is subject to regular internal review. SG60 is met, as well as the first criterion under SG80 (regular internal reviews).

Since at least occasional external reviews also take place, such as the performance reviews, SG80 is also met.

There is no specific requirement to how frequently reviews must be undertaken to qualify as regular, but the frequency 2008/2014/2021 seems to qualify as regular. SG100 is met.

All SG60, SG80 and SG100 were met.

PI 3.2.4 : 100

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International Convention for the Conservation of Atlantic Tunas

3.1 Governance and Policy

P.3.1.1 Legal and/or customary framework

3.1.1.a Compatibility of laws or standards with effective management		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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** that deliver management outcomes consistent with MSC Principles 1 and 2.

The focus of this PI is on whether there is an appropriate and effective legal and/or customary framework that is capable of delivering sustainability in the UoA(s) in accordance with P1 and P2.

At the national level an assessment will need to be made for the UoA(s) to provide evidence that there are national laws agreements and policies governing the actions of the authorities and actors involved in managing the UoA and that that effective regional and/or international cooperation creates a comprehensive cooperation under the obligations of UNCLOS Articles 63(2), 64, 118, 119, and UNFSA Article 8.

The management systems of all flag states of the UoA and all coastal states (i.e. states in whose national waters the fishery takes place) must be assessed under this scoring issue (SI), as well as any international management regime that is in place for the fishery. Since scoring elements are not used for Principle 3, the guideposts at each management level, including the national management system of *all* flag and coastal states, must be met for the fishery to achieve the score in question.

The International Commission for the Conservation of Atlantic Tunas (ICCAT) is the RFMO responsible for the conservation and management of tuna and tuna-like species in the Atlantic Ocean and its adjacent seas. It was established through the International Convention for the Conservation of Atlantic Tunas, which was adopted in 1966 and entered into force in 1969. The Convention is part of ICCAT's Basic Texts (ICCAT Basic Texts 2019), available on the ICCAT website. The Commission may be joined by states that are members of the UN, a specialised UN agency or an inter-governmental economic integration organisation constituted by states that have transferred to it competence over the matters governed by the ICCAT Convention (Art. XIV). The Food and Agriculture Organization of the United Nations (FAO) initiated the negotiations of the Convention,

but ICCAT did not become part of the FAO constitutional structure, as the Indian Ocean Tuna Commission (IOTC) later would. ICCAT still has an institutional link to FAO in that instruments of ratification, approval and adherence are deposited with FAO, and a cooperation agreement with FAO is part of ICCAT's Basic Texts (ICCAT 2019). As per 2025, there are 54 Contracting Parties to the ICCAT Convention. Most border on the ICCAT Convention Area, but distant-water fishing nations from outside the area are also parties, notably the People's Republic of China and the Republic of Korea. ICCAT can also grant the status of Cooperator following the procedures outlined in the 2021 Recommendation by ICCAT on Criteria for Attaining the Status of Cooperating Non-Contracting Party, Entity or Fishing Entity in ICCAT (ICCAT Rec. 21-24). As per 2025, there are four entities with Cooperator status in ICCAT: Bolivia, Chinese Taipei (Taiwan), Suriname and Guyana.

The Convention contains provisions on the functions, structure and decision-making procedures of the Commission. The purpose of the Commission is to engage in 'the study of the populations of tuna and tuna-like fishes […] and such other species of fishes exploited in tuna fishing in the Convention area as are not under investigation by another international fishery organization (Art. IV(1))'. In doing so, the Commission shall collect and analyse statistical information, study and appraise information concerning measures and methods to ensure the sustainability of fish stocks, recommend studies and investigations to the Contracting Parties, and make research findings publicly available (Art. IV(2)). The Commission shall hold a regular meeting once every two years, and special meetings may be called at the request of a majority of the Contracting Parties or by decision of the Council (Art. III(4)), which consists of the Chairman and the Vice-Chairmen of the Commission together with the representatives of 4-8 Contracting Parties (Art. V). Decisions shall be taken by a majority of the Contracting Parties, each Contracting Party having one vote, and the quorum is two-thirds of the Parties (Art. III(3)). The meetings of the Commission and its subsidiary bodies shall be public unless the Commission decides otherwise (Art. III(6)). The Commission may establish panels on the basis of species, groups of species, or geographical areas (Art. VI). Based on scientific evidence, it may give recommendations designed to maintain stocks at levels which will permit maximum sustainable catches (Art. VII(1)(a)). Recommendations become effective for all Contracting Parties six months after notification sent from the Commission (Art. VIII(2)). A party can object to a recommendation, and in that case the recommendation does not become effective for that party for an additional 60 days (Art. VIII(3)(a)), after which is becomes effective for all other parties than the one that filed the objection (Art. VIII(3)(c)). However, if a recommendation receives objections from less than one fourth of the Contracting Parties, it becomes binding upon all (Art. VIII(3)(d)), but then if a party objects for a second time, it remains unbound (Art. VIII(3)(e)). If a recommendation received objection from more than half of the Contracting Parties, it does not become effective (Art. VIII(3)(g)). The Commission may also adopt Resolutions, which are not binding.

As per 2025, ICCAT has the following subsidiary bodies: the Standing Committee on Finance and Administration, the Standing Committee on Research and Statistics, the Conservations and Management Measures Compliance Committee, the Permanent Working Group for the Improvement of ICCAT Statistics and Conservation Measures, the Standing Working Group on Dialogue between Fisheries Scientists and Managers, as well as a number of ad hoc working groups, including on fish aggregating devices (FADs), electronic monitoring systems (EMS) and port inspection capacity building and assistance. There are four panels: on tropical tunas (yellowfin, bigeye and skipjack), Northern temperature tunas (albacore and Atlantic bluefin), Southern temperature tunas (albacore and southern bluefin) and other species (swordfish, billfishes and small tunas).

One of the recommendations of the first performance review of ICCAT (see PI 3.2.4 for details) was to modernise the ICCAT Convention (Hurry et al. 2009). At its meeting in 2012, the Commission established the Working Group to Develop Amendments to the ICCAT Convention, which met six times during the period 2012–2018 (Tseng et al. 2025). The working group's recommendations were presented at the Commission's 2018 meeting, and at its meeting in 2019, the Commission adopted

the Protocol to Amend the International Convention for the Conservation of Atlantic Tunas (ICCAT 2020). The Protocol contains proposals for substantial revisions of the ICCAT Convention related to general principles (such as the introduction of the precautionary and ecosystem approaches), decision-making procedures (replacement of the majority approach with a consensus approach), enforcement (introduction of a high seas boarding and inspection scheme), participation of Fishing Entities (introduction of the new category 'Members of the Commission') and dispute settlement (including an Annex on procedures for dispute resolution), among other things (ICCAT 2020). For the Protocol to enter into force, an instrument of approval, ratification or acceptance is required from three-fourths of the Contracting Parties to the Convention. As per 2025, only 7 of the necessary 36 instruments had been deposited with the FAO (acceptance: Canada, Japan and the UK; approval: the EU and Norway; ratification: Belize; and other means (adherence): Costa Rica) (FAO 2025). In sum, the Protocol introduces far-reaching changes in ICCAT to bring the organisation into line with modern best practice in international fisheries management, but it is still a long way from becoming effective. In the following, the provisions of the Protocol will be sporadically referred to for context, but it cannot be used for scoring fisheries until it enters into force.

Since the fishery is 'subject to international cooperation', it is scored according to the provisions in SA4.3.1(b) (SG60), SA4.3.2(b) (SG80) and SA4.3.3(b) (SG100) of the MSC Fisheries Standard v3.1. Presuming that there is an effective national legal system in place in the relevant flag and coastal states, the first requirement across SG60-SG100 is met. The international cooperation delivers at least the collection and sharing of scientific data, the scientific assessment of stock status and the development of scientific advice (SA4.3.1.1), and we can presume that the flag state has at least cooperative non-member status in ICCAT (SA4.3.1.2). Hence, there is a framework for cooperation with other parties to deliver management outcomes consistent with MSC Principles 1 and 2. SG60 is met.

Cooperation is organised and effective in the sense that it delivers agreement and management actions consistent with management advice, as well as monitoring and control (SA4.3.2(b)(iii)). The flag state is presumed to be member of ICCAT (SA4.3.2(b)(iv)). SG80 is met.

There are two additional requirements at SG100: that cooperation must be based on binding agreement (SA4.3.3(b)(ii)) and that management outcomes consistent with MSC Principles 1 and 2 are delivered (SA4.3.3(b)(iii)). The ICCAT Convention is a binding agreement (treaty) acceded to by (presumably) all relevant states engaged in the fisheries, so the first criterion at SG100 is met, even more so since the opt-out provisions are more limited than in many other international agreements. Whether the system delivers management outcomes consistent with MSC Principles 1 and 2 must be assessed in the concrete situation and cannot be concluded for all times and contexts. SG100 is not met. That is, it is not met by default, but it might be achievable.

3.1.1.b Resolution of disputes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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, which is appropriate to the context of the fishery and has been **tested and proven to be effective**.

Disputes may arise at national level in the flag and coastal states of the UoA fishery or at international level in ICCAT, and dispute resolution mechanisms must exist at both levels. In the following, it is presumed that SG100 is met for the national level.

The ICCAT Convention does not include any formal dispute resolution mechanisms, and the means available to Contracting Parties is in practice consultation in the Commission and its subsidiary bodies, panels and working groups (ICCAT 2019). The Protocol to Amend the International Convention for the Conservation of Atlantic Tunas includes new dispute settlement procedures (ICCAT 2020), but it is not yet in force and cannot be used for scoring the fishery at this time.

At the wider international level, disputes can be solved through the means available to the parties according to international law in general, and the law of the sea in particular. According to Article 27 of the UN Fish Stocks Agreement (UNFSA 1995), states have the obligation to settle their disputes by negotiation, inquiry, mediation, conciliation, arbitration, judicial settlement, resort to regional agencies or arrangements, or other peaceful means of their own choice. The Agreement, in Article 30, makes the provisions relating to the settlement of disputes in Part XV of the UN Law of the Sea Convention (UNCLOS 1982) applicable, *mutatis mutandis*, to any dispute between parties to the Agreement concerning the interpretation or application of a subregional, regional or global fisheries agreement relating to straddling fish stocks or highly migratory fish stocks to which they are parties, including any dispute concerning the conservation and management of such stocks, whether or not they are also parties to the Convention. According to the Convention's Articles 286-287, disputes must be submitted to one of the following compulsory dispute settlement mechanisms if peaceful means fail: i) the International Tribunal for the Law of the Sea (ITLOS) in Hamburg; ii) the International Court of Justice (ICJ) in The Hague; iii) an Arbitral Tribunal in accordance with the Convention's Annex VII, which is the default option if no other method is chosen; or iv) a Special Arbitral Tribunal in accordance with the Convention's Annex VIII for particular technical disputes, e.g. relating to fisheries and the marine environment. Arbitration can be handled under the Permanent Court of Arbitration (PCA) in The Hague, which provides dispute resolution services to the international community.

Hence, the management system incorporates or is subject by law to mechanisms for the resolution of legal disputes arising within the system. SG60 is met.

The mechanisms are transparent in that any cases before national courts or international courts or tribunals would be publicly announced, and consultations within ICCAT are transparent in that protocols and meeting minutes refer deliberations between parties and not only conclusions of discussions. The mechanisms are considered to be effective in dealing with most issues and are appropriate to the context of the UoA. This takes account of the fact that disputes are generally resolved within the established governance structure, primarily through consultation. SG80 is met.

The global dispute resolution mechanisms have generally been little used in fisheries disputes and more in jurisdictional disputes, but ITLOS Cases 3 and 4 concerned a fisheries dispute between Australia and New Zealand on the one hand and Japan on the other on the management of the Southern Bluefin tuna stock (ITLOS 1999). The fact that the ITLOS cases concerned another stock/RFMO than the UoA does not make it irrelevant here, as Component 3.1 relates to the overarching management framework of the fishery (here referring to dispute resolution mechanisms available at global level in the law of the sea), unlike Component 3.2, which is about the fishery-specific management system. However, these cases were limited in scope to the use of provisional measures according to UNCLOS Article 290. Following ITLOS's provisional measures, the parties proceeded with the formation of a UNCLOS Annex VII arbitral tribunal to settle the substantive legal issues. The tribunal, however, decided it did not have jurisdiction in the case as the dispute had arisen within the Commission for the Conservation of Southern Bluefin Tuna (CCSBT) and should have been settled using the dispute resolution mechanisms in that RFMO (Southern Bluefin Tuna Case 2000). In general, ITLOS has primarily been used to settle disputes on provisional measures and the prompt release of vessels following arrest in accordance with UNCLOS Article 292. It has not been tested and proven to be effective in solving disputes that more typically arise in international fisheries management, such as disputes between states on fishing rights, regulatory measures or enforcement and compliance. SG100 is not met. This does not necessarily preclude the opposite conclusion based on a more thorough assessment of the extent to which disputes have actually been solved through peaceful means such as consultation within ICCAT. It is just that sufficient (systematically collected) evidence does not appear to be available at the present time.

3.1.1.c Respect for rights		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

Mechanisms to commit to the rights of people dependent on fishing for food and livelihood may exist at both national level in the flag states and at international level in ICCAT. The management system of coastal states (which are not flag states in the fishery) is less relevant here. It is normally the combined effects of measures at national and international level that have to be assessed, although it is possible that measures at just one of these levels are sufficient to reach a specific guidepost.

In 2001, ICCAT developed the Criteria for the Allocation of Fishing Possibilities, which are now effective through Res. 15-13. According to the Criteria, quotas can be allocated to Contracting and Non-Contracting Parties as well as Entities (such as the EU) and Fishing Entities (such as Chinese Taipei (Taiwan)) (Art. I(1)) that have the ability to apply the conservation and management measures (CMMs) of ICCAT, and to collect data and conduct scientific research on the relevant resources (Art. I(2)). Four groups of allocation criteria are established: i) criteria relating to past/present fishing activity (historical catches, as well as the interests, fishing patterns and fishing practices of qualifying participants); ii) criteria relating to the status of the stock(s) to the allocated and the fisheries (stock status and geographical distribution); iii) criteria relating to the status of the qualifying participants

(the interests of artisanal, subsistence and small-scale coastal fishers; the needs of coastal fishing communities dependent mainly on fishing for the stocks; the needs of the coastal states in the region whose economies are overwhelmingly dependent on the exploitation of living marine resources, including those regulated by ICCAT; the socio-economic contribution of the fisheries for stocks regulated by ICCAT to the developing states, especially small island developing states and developing territories of the region; the respective dependence on the stock(s) of the coastal states, and of the other states that fish species regulated by ICCAT; the economic and/or social importance of the fishery for qualifying participants whose fishing vessels have habitually participated in the fishery in the Convention Area; the contribution of the fisheries for the stocks regulated by ICCAT to the national food security/needs, domestic consumption, income resulting from exports, and employment of qualifying participants; and the right of qualified participants to engage in fishing on the high seas for the stocks to be allocated); and iv) criteria relating to compliance/data submission/scientific research by qualifying participants (Art. III).

The Multi-Annual Conservation and Management Programme for Tropical Tunas states that the interests of developing coastal states and small-scale artisanal fishers shall be given special consideration in the determination of catch limits (ICCAT Rec. 22-01, Arts. 5, 6).

Hence, 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. SG60 is met.

As these rights are not only 'considered' (which reflects the SG60 requirement of these rights being respected; cf. SA4.3.6) but are 'observed' in the sense that there are formal arrangements in place within the legal system to secure them (cf. SA4.3.7), SG80 is met.

Since Resolutions (unlike Recommendations) are not binding in ICCAT, there is no 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. SG100 is not met.

All SG60 and SG80 were met, and 0 out of 3 SG100 were met.

PI 3.1.1 : 80

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P.3.1.2 Consultation, roles and responsibilities

3.1.2.a Roles and responsibilities		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

The requirements under this SI must be met for both the international level and for the national management system in the relevant flag states. In the following, it is assumed that SG100 is met for the national level, so the final score will depend on how the international level is assessed. The management system of coastal states (which are not flag states in the fishery) is less relevant for this PI.

At RFMO level, the ICCAT Convention defines the functions, roles and responsibilities of the ICCAT Commission with its subsidiary bodies (ICCAT 2019), which as per 2025 include the Standing Committee on Finance and Administration, the Standing Committee on Research and Statistics, the Conservations and Management Measures Compliance Committee, the Permanent Working Group for the Improvement of ICCAT Statistics and Conservation Measures, the Standing Working Group on Dialogue between Fisheries Scientists and Managers, as well as a number of ad hoc working groups, including on fish aggregating devices (FADs), electronic monitoring systems (EMS) and port inspection capacity building and assistance. There are four panels: on tropical tunas (yellowfin,

bigeye and skipjack), Northern temperature tunas (albacore and Atlantic bluefin), Southern temperature tunas (albacore and southern bluefin) and other species (swordfish, billfishes and small tunas). The functions, roles and responsibilities of the subsidiary bodies are defined in a number of Recommendations and Resolutions. See, e.g., Recommendation 11-23 for terms of reference for the Permanent Working Group on for the Improvement of ICCAT Statistics and Conservation Measures (ICCAT Rec. 11-23) and Recommendation 11-24 for terms of reference for the Compliance Committee (ICCAT Rec. 11-24).

Hence, organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are generally understood. SG60 is met.

Since they are described in international treaty and national legislation in flag states, the functions, roles and responsibilities are explicitly defined and well understood for key areas or responsibility and interaction. SG80 is met.

It is a principal and methodological challenge to conclude that functions, roles and responsibilities are well understood for *all* areas of responsibility and interaction, and a precautionary scoring warrants the conclusion that SG100 is not met. The highest performance level may be achieved, however, if the assessment team probes thoroughly into stakeholders' understanding of functions, roles and responsibilities during the assessment and at the site visit, in particular.

3.1.2.b Consultation processes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 accep**t 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**.

As mentioned under SI 3.1.1a above, ICCAT can grant the status of Cooperators following the procedures outlined in the 2021 Recommendation by ICCAT on Criteria for Attaining the Status of Cooperating Non-Contracting Party, Entity or Fishing Entity in ICCAT (ICCAT Rec. 21-24). As also mentioned above, there are currently (2025) 54 Contracting Parties and 4 Cooperators in ICCAT. To encourage participation at meetings, a Meeting Participation Fund for Developing ICCAT Contracting Parties has been established (ICCAT Rec. 11-26).

Observer status can be achieved as per the Guidelines and Criteria for Granting Observer Status at ICCAT Meetings (ICCAT 2005), which is neither a Recommendation nor a Resolution but categorised as 'other' in the compendium of ICCAT decisions (ICCAT 2025). The Guidelines state that the following *shall* be invited to ICCAT meetings: the FAO; inter-governmental economic integration organisations constituted by states that have transferred to it competence over the matters governed by the ICCAT Convention; inter-governmental organisations that have regular contacts with ICCAT as regards fisheries matters or whose work is of interest to ICCAT or vice versa; and non-Contracting parties with coastlines bordering the Convention Area, or those non-Contracting parties, entities or fishing entities identified as harvesting tunas or tuna-like species in the Convention Area (Art. 1). Further, all non-governmental organisations (NGOs) that support the objectives of ICCAT and have a demonstrated interest in the species under the purview of ICCAT should be eligible to participate as observers at all meetings of the Commission and its subsidiary bodies, except

extraordinary meetings held in executive sessions or meetings of Heads of Delegations (Art. 2). NGOs admitted to a meeting may make oral statements and provide written input, but are not eligible to vote (Art. 5). In short, there are certain international organisations and non-member states that *must* be invited to attend ICCAT meetings as observers, and NGOs *can* apply for observer status.

At the last ICCAT Commission meeting in 2024, six inter-governmental organisations were present (ICCAT 2024): Caribbean Regional Fisheries Mechanism (CRFM) (online); Food and Agriculture Organization of the United Nations (FAO) (online); General Fisheries Commission for the Mediterranean (GFCM); Ministerial Conference on Fisheries Cooperation among African States Bordering the Atlantic Ocean (ATLAFCO/COMHAFAT); Organization of the Fisheries and Aquaculture Sector of the Central American Isthmus (OSPESCA); and Western Central Atlantic Fishery Commission (WECAFC) (online). Twenty-five NGOs were in attendance: Alianza Latinoamericana para la Pesca Sustentable y Seguridad Alimentaria/Latin American Alliance for Sustainable Fisheries and Food Security (ALPESCAS); Association Euroméditerranéenne des Pêcheurs Professionnels de Thon (AEPPT); Birdlife International (BI) (online); Brazilian Association of Fish Industries (ABIPESCA) (online); Deutsche Stiftung Meeresschutz/German Foundation for Marine Conservation (DSM); Ecology Action Centre (EAC); Europêche; Federation of European Aquaculture Producers (FEAP); Federation of Maltese Aquaculture Producers (FMAP); Fishery Improvement Plan (FIP) (online); Global Fishing Watch (GFW); Global Tuna Alliance (GTA); International Seafood Sustainability Foundation (ISSF); Manta Trust (online), Marine Stewardship Council (MSC) (online); Organization for the Promotion of Responsible Tuna Fisheries (OPRT) (online); Pew Charitable Trusts (Pew); Red Iberoamericana de Pesca Artesanal de Pequeña Escala (RIPAPE); Sciaena; The Billfish Foundation (TBF) (online); The International Pole & Line Foundation (IPLNF) (online); The Ocean Foundation; The Shark Trust; Tuna Producer Association (TPA); and Worldwide Fund For Nature (WWF).

Hence, the management system includes consultation processes that obtain relevant information from the main affected parties, including local knowledge, to inform the management system. This happens through the established consultation mechanisms at national and international level. SG60 is met.

Consultations take place on a regular basis, and the management system demonstrates consideration of the information obtained, as reflected in protocols and minutes from meetings. The requirement here is not that the authorities necessarily accept the positions of stakeholders, but that they allow them to be presented and listened to. SG80 is met.

It cannot be concluded by default that the management system explains how information obtained from stakeholders is used or not used. SG100 is not met. The highest performance level may be achieved, however, if the assessment team probes thoroughly into stakeholders' perceptions of the adequacy of information from the management system during the assessment and at the site visit, in particular.

3.1.2.c Participation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

As follows from SI 3.1.2b above, the consultation process provides opportunity for all interested and affected partis to be involved in Commission and subsidiary body meetings in ICCAT, where there is extensive stakeholder participation. SG80 is met.

Organisations with an interest in the fishery are not only given the opportunity to be involved, they are actively encouraged, and their participation is facilitated by ICCAT, e.g. in connection with meetings in the Commission and the subsidiary bodies. There is actually a requirement in the Guidelines and Criteria for Granting Observer Status at ICCAT Meetings (ICCAT 2005) that certain observers are invited to meetings (intergovernmental organisations and states), and it follows that other stakeholders (NGOs) are also encouraged to participate. SG100 is met.

All SG60 and SG80 were met, and 1 out of 3 SG100 were met.

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P.3.1.3 Longterm objectives

3.1.3.a Objectives		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 the MSC Fisheries Standard and the **precautionary approach**, are **explicit** within **management policy**.	**Clear** long-term objectives that guide decision-making, consistent with the MSC Fisheries Standard and the **precautionary approach**, are **explicit** within **and required by** management policy.

This PI also sets requirements that have to be met for both the international and national management systems, for the latter including all flag and coastal states.

The ICCAT Convention does not contain any explicitly stated objectives as such, but according to the Preamble, states shall 'co-operate in maintaining the populations of [tuna and tuna-like fishes found in the Atlantic Ocean] at levels which will permit the maximum sustainable catch for food and other purposes […] (ICCAT 2019, Preamble)'. Likewise, Art. VIII states that, 'The Commission may, on the basis of scientific evidence, make recommendations designed to maintain the populations of tuna and tuna-like fishes that may be taken in the Convention area at levels which will permit the maximum sustainable catch (ICCAT 2019, Art. VIII)'. In 2015, Resolution 15-12 introduced the precautionary approach as the fundamental principle underlying fisheries management in ICCAT (ICCAT Res. 15-12). The Resolution states that the Commission should apply a precautionary approach, in accordance with relevant international standards, when making recommendations (Art. 1). This implies that best available scientific advice is used; that caution is exercised when scientific information is uncertain, unreliable or inadequate; that stock specific reference points, in particular limit reference points, are determined and action taken if they are exceeded; and that the absence of adequate scientific information is not used as a reason to postpone or not to take conservation and management action (Art. 2). The Commission should take measures to ensure that when limit reference points are approached, they will not be exceeded, and if they are exceeded, the Commission should without delay take action to restore the stocks to levels above the reference points (Art. 3).

Likewise, Resolution 15-11 introduced the ecosystem approach to fisheries management (ICCAT Res. 15-11). It states that the ecosystem-based approach should be used by the Commission when it makes recommendations (Art. 1). In implementing this approach, the Commission should consider the interdependence of stocks and species belonging to the same ecosystem or associated with or dependent upon target stocks; consider the impacts of fishing, other relevant human activities, and environmental factors on target stocks, non-target species and species belonging to the same ecosystem or associated with or dependent upon target stocks in the Convention area; and minimise negative impacts of fishing activities on the marine ecosystem (Art. 2).

The Protocol to Amend the International Convention for the Conservation of Atlantic Tunas (ICCAT 2020) introduces a new Article IV which requires the Commission to apply the precautionary approach and an ecosystem approach, use the best scientific evidence available and protect biodiversity in the marine environment. As mentioned under SI 3.1.1a, the Protocol is not yet in force and cannot be used for scoring the fishery.

Hence, clear long-term objectives that guide decision-making, consistent with the MSC Fisheries Standard and the precautionary approach, are explicit within management policy. SG60 and SG80 are met.

Since ICCAT Resolutions are not binding, it cannot be concluded that these objectives are required by management policy. SG100 is not met. (If the Protocol enters into force, the objectives will become binding, and SG100 may be achieved.)

All SG60 and SG80 were met, and 0 out of 1 SG100 were met.

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3.2 Fishery Specific Management System

P.3.2.1 Fishery-specific objectives

3.2.1.a Objectives		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Objectives, which are broadly consistent with achieving the outcomes expressed by MSC Principles 1 and 2, are **implicit** within the fishery-specific management system.	**Short and long-term objectives**, which are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, are **explicit** within the fishery-specific management system.	**Well-defined and measurable short- and long-term objectives**, which are demonstrably consistent with achieving the outcomes expressed by MSC Principles 1 and 2, are **explicit** within the fishery-specific management system.

Fishery-specific objectives are normally found at RFMO level, although they may be supplemented by (and usually implemented in) national legislation in flag and/or coastal states. It is sufficient that fishery-specific objectives are found explicitly at one of these levels as long as they are intended to apply (or in practice apply) to the other level as well.

As follows from PI 3.1.3 above, the precautionary and ecosystem-based approaches were made fundamental principles for ICCAT through two Resolutions in 2015 (ICCAT Res. 15-11; ICCAT Res. 15-12). In particular, precautionary reference points are to be set and specific action to be taken when they are approached and when they are exceeded (ICCAT Res. 15-15, Arts. 2, 3). ICCAT Recommendation 15-07 sets guidelines for the development of harvest control rules and management strategy evaluation. The following principles are established for determining pre-agreed management actions associated to harvest control rules and reference points: i) If stock biomass is assessed as being above $B_{THRESHOLD}$, but the fishing mortality is assessed as exceeding F_{TARGET}, management actions shall be adopted to reduce the fishing mortality rate in as short a period as possible to F_{TARGET}; ii) If stock biomass is assessed as being below $B_{THRESHOLD}$, management actions shall be implemented to reduce the fishing mortality rate in as short a period as possible to the F specified in the harvest control rule; iii) If stock biomass is assessed as being below B_{LIM}, severe management actions shall be adopted immediately to reduce the fishing mortality rate, including the suspension of the fishery and the initiation of scientific monitoring (ICCAT Res. 15-07, Annex 1).

ICCAT Recommendation 11-13 sets principles for decision making on CMMs: i) for stocks that are not overfished and not subject to overfishing (i.e. stocks in the green quadrant of the Kobe plot), management measures shall be designed to result in a high probability of maintaining the stock within this quadrant; ii) for stocks that are not overfished, but are subject to overfishing, (i.e. stocks in the upper right yellow quadrant of the Kobe plot), the Commission shall immediately adopt management measures, taking into account, *inter alia*, the biology of the stock and scientific advice, designed to result in a high probability of ending overfishing in as short a period as possible; iii) for stocks that are overfished and subject to overfishing (i.e. stocks in the red quadrant of the Kobe plot), the Commission shall immediately adopt management measures, again taking into account, *inter alia*, the biology of the stock and scientific advice, designed to result in a high probability of ending overfishing in as short a period as possible, and adopt a plan to rebuild these stocks; and iv) or stocks that are overfished and not subject to overfishing (i.e. stocks in the lower left yellow quadrant of the Kobe plot), the Commission shall adopt management measures designed to rebuild these stocks in as short a period as possible (ICCAT Rec. 11-13, Arts. 1-4).

More specific objectives are set in Recommendations established for different stocks. For instance, for North Atlantic albacore the following management objectives are set: i) to maintain the stock in the green quadrant of the Kobe plot, with at least a 60 % probability, while maximising long-term yield from the fishery; and ii) where the spawning stock biomass (SSB) has been assessed to be below the level capable of producing MSY (SSB_{MSY}), to rebuild SSB to or above SSB_{MSY}, with at least a 60 % probability, and within as short a time as possible, while maximising average catch and minimising inter-annual fluctuations in TAC levels (ICCAT Rec. 21-04). Catch limits are set for both target and non-target species – see, e.g., ICCAT Rec. 22-01 on the multiannual conservation and management programme for tropical tunas and ICCAT Rec. 23-11 on management measures for the conservation of South Atlantic blue shark. See also ICCAT Rec. 07-07, which aims to reduce the incidental catch of seabirds in longline fisheries, and ICCAT Rec. 22-12, whose objective is to prevent sea turtle interactions and minimise the adverse consequences of such interactions when they occur.

Hence, objectives which are broadly consistent with achieving the outcomes expressed by MSC Principles 1 and 2, are at least implicit within the fishery-specific management system. SG60 is met.

These objectives are explicit, and they are short- and long-term. Long-term objectives are to maintain stocks at sustainable levels and minimise the fishery's impact on the wider ecosystem. Short-term objectives include keeping annual catches within the set catch limits. SG80 is met.

Some fisheries have objectives that are well-defined and measurable, at least for P1, but many stocks are managed only by catch limits, and well-defined and measurable objectives have not been set. SG100 is not met.

All SG60 and SG80 were met, and 0 out of 1 SG100 were met.

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P.3.2.2 Decision-making processes

3.2.2.a Decision-making processes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There are **some** decision-making processes in place that result in **measures** and **strategies** to achieve the fishery-specific objectives.	There are **established** decision-making processes that result in **measures** and **strategies** to achieve the fishery-specific objectives.	

This PI applies mainly to decision-making processes at RFMO level. Decision-making processes at national level may be relevant, but this level does not necessarily have to be assessed if decisions on management measures are mainly made at the international level.

As mentioned in SI 3.1.1a, the ICCAT Convention contains detailed decision-making rules (ICCAT 2019). Recommendations become effective for all Contracting Parties six months after notification sent from the Commission (Art. VIII(2)). A party can object to a recommendation, and in that case the recommendation does not become effective for that party for an additional 60 days (Art. VIII(3)(a)), after which is becomes effective for all other parties than the one that filed the objection (Art. VIII(3)(c)). However, if a recommendation receives objections from less than one fourth of the Contracting Parties, it becomes binding upon all (Art. VIII(3)(d)), but then if a party objects for a second time, it remains unbound (Art. VIII(3)(e)). If a recommendation received objection from more than half of the Contracting Parties, it does not become effective (Art. VIII(3)(g)). The Commission may also adopt Resolutions, which are not binding.

As mentioned under PI 3.2.1 above, ICCAT Recommendation 11-13 sets principles for decision making on CMMs: i) for stocks that are not overfished and not subject to overfishing (i.e. stocks in the green quadrant of the Kobe plot), management measures shall be designed to result in a high probability of maintaining the stock within this quadrant; ii) for stocks that are not overfished, but are subject to overfishing, (i.e. stocks in the upper right yellow quadrant of the Kobe plot), the Commission shall immediately adopt management measures, taking into account, *inter alia*, the biology of the stock and scientific advice, designed to result in a high probability of ending overfishing in as short a period as possible; iii) for stocks that are overfished and subject to overfishing (i.e. stocks in the red quadrant of the Kobe plot), the Commission shall immediately adopt management measures, again taking into account, *inter alia*, the biology of the stock and scientific advice, designed to result in a high probability of ending overfishing in as short a period as possible, and adopt a plan to rebuild these stocks; and iv) or stocks that are overfished and not subject to overfishing (i.e. stocks in the lower left yellow quadrant of the Kobe plot), the Commission shall adopt management measures designed to rebuild these stocks in as short a period as possible (ICCAT Rec. 11-13, Arts. 1-4).

Since its establishment, ICCAT has implemented a wide range of tools for the conservation and management of stocks, including TACs, size limits, effort restrictions, observer programmes, closed areas and seasons, vessel registration and information exchange, gear restrictions and enforcement measures (ICCAT 2025).

Hence, there are some decision-making processes in place that result in measures and strategies to achieve the fishery-specific objectives. SG60 is met.

The decision-making processes are established in the sense that they can be immediately triggered for fisheries-related issues, have been triggered in the past and have led to decisions about sustainability in the fishery (GSA4.8). Examples of that is how the shortcomings identified in performance reviews have been followed up by the Commission, such as the introduction of the precautionary and ecosystem-based approaches in 2015 (Hurry at al. 2009; ICCAT Res. 15-11; ICCAT Res. 15-12), as well as how CMMs are continuously issued to address challenges related to stock status, ecosystem impact and IUU fishing identified by the Commission and its subsidiary bodies. Further, decision-making procedures are recognised by stakeholders in the fishery and have proved durable (GSA4.8). SG80 is met.

3.2.2.b Responsiveness of decision-making processes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

It follows from the above that 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. This is evident in the interaction between the Commission its subsidiary bodies, where problems can either be identified by the Commission and referred to one of the committees, panels or working groups for further investigation, or identified by one of the subsidiary bodies and referred to the Commission for high-level discussions and decision making. As follows from the long list of CMMs on issues related to target stock management, ecosystem impact and compliance challenges, this includes both serious and other important issues. Many of the recommendations of the two performance review reports (Hurry et al. 2009; Spencer et al. 2016) have been followed up, e.g. the introduction of the precautionary and ecosystem-based approaches (ICCAT Res. 15-11; ICCAT Res. 15-12). See also PI 3.2.1 and SI 3.2.2a above on ICCAT Recommendation 11-13 on principles for decision making on CMMs.

Processes are transparent in that detailed minutes from meetings are publicly available (see SI 3.2.2d below), and they are adaptive in that decisions are evaluated by the various specialist meetings and feedback is provided to the Commission. SG60 and SG80 are met.

It cannot be concluded that *all* issues are necessarily responded to in a timely and adaptive manner. SG100 is not met.

3.2.2.c Use of precautionary approach		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	Decision-making processes use the **precautionary approach** and are based on best available information.	

As accounted for under PIs 3.1.3 and 3.2.1 above, the precautionary approach has been formally adopted by ICCAT as mandatory basis for making decisions about conservation and management of fish stocks and their environment (ICCAT Res. 15-12).

There is evidence from the large number of meetings that have been conducted and reports written for the Commission which provide analyses and advice based on all the available information.

Overall, ICCAT decision-making processes are based on the best available information and the precautionary approach. SG80 is met.

3.2.2.d Accountability and transparency of management system and decision-making process		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Some information on the fishery's performance and management action is generally available on request to stakeholders.	**Information on the fishery's performance and management action is available on request**, and explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation, and review activity.	Formal reporting to all interested stakeholders **provides comprehensive information on the fishery's performance and management actions** and describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation, and review activity.

The ICCAT website has extensive information on the working of the Commission and its subsidiary bodies, such as detailed meeting documents. As this includes at least at least general summaries of information on allocation, compliance and fisheries management decisions (SA4.8.4.1), SG60 is met.

In the detailed protocols and minutes from meetings in the Commission and its subsidiary bodies, explanations are provided for action or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity. This is ensured, for instance, by the practice of providing the views of all members with an opinion on a matter instead of just the conclusions of discussions. SG80 is met.

The posting of protocols and minutes amounts to formal reporting to all interested stakeholders as much as distribution by post or email would have done. The detailed information provided in these documents, reflecting the views of all states that take part in a discussion, can be characterised as relatively comprehensive, but some information, e.g. on inspections and infringements, is presented in a summary manner. SG100 is not met.

3.2.2.e Approach to disputes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 of the fishery.	The management system or UoA is attempting to comply in a timely fashion with judicial decisions arising from any legal challenges.	The management system or UoA acts proactively to avoid legal disputes or rapidly implements judicial decisions arising from legal challenges.

The management authority and the fishery are not subject to continuing court challenges. Nor are they indicating a disrespect of defiance of the law by repeatedly violating the same law or regulation necessary for the sustainability of the fishery. SG60 is met.

If taken to court by fishing companies, the management authority will comply with the judicial decision in a timely manner in accordance with the formal procedures laid down in the fisheries acts and general legislation on the distribution of power in each flag/coastal state. This includes that if management authorities lose a court case, they will accept the verdict. SG80 is met.

The management authority works proactively to avoid legal disputes through the tight cooperation with user-groups and other stakeholders at the regulatory level, ensuring as high legitimacy as possible for regulations and other management decisions; see SI 3.1.2b above. SG100 is met.

All SG60 and SG80 were met, and 1 out of 3 SG100 were met.

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P.3.2.3 Compliance and enforcement

3.2.3.a MCS system		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
MCS **mechanisms** exist within the UoA.	An MCS **system** exists within the UoA.	A **comprehensive** MCS system is well-established within the UoA.

Monitoring, control and enforcement (MCS) is undertaken by states since it is states that have the jurisdiction to do so and that possess and operate patrol vessels. Coastal states have exclusive MCS jurisdiction in waters under national jurisdiction (internal waters, territorial sea and EEZ), while only flag states have traditionally had the jurisdiction to enforce regulations for vessels flying their flag on the high seas. The UN Fish Stocks Agreements changed this by mandating RFMOs to allow for any convention party to conduct inspections of any fishing vessels on the high seas within the respective convention area (UNFSA 1995, Art. 21(1)).

The ICCAT Convention, the Contracting Parties agree to take all necessary action to ensure enforcement of the Convention's provisions (ICCAT 2019, Art. IX(1)) and to collaborate with each other with a view to setting up a system of international enforcement to be applied beyond national jurisdiction in the Convention Area (Art. IX(3)). A number of enforcement measures have been taken, including the establishment of an integrated online reporting system (ICCAT Rec. 16-19; ICCAT Rec. 21-20), introduction of port state measures (ICCAT Rec. 23-11) and transhipment regulations (ICCAT Rec. 21-15), and determination of minimum standards for inspection in port (ICCAT Rec. 14-08), vessel monitoring systems (VMS) (ICCAT Rec. 18-10) and electronic monitoring systems (EMS) (ICCAT Rec. 23-18). An ICCAT Joint Scheme of International Inspection was introduced in the multi-annual management plan for bluefin tuna in the eastern Atlantic and the Mediterranean (ICCAT Rec. 21-08). If at any time more than 15 fishing vessels of any one Contracting Party are engaged in the fishery, the Contracting Party shall have an inspection vessel in the Convention Area, or shall cooperate with another Contracting Party to jointly operate an inspection vessel (Art. 230).

Hence, MCS mechanisms exist within the UoA. SG60 is met.

The mechanisms qualify as a system. SG80 is met.

The additional requirement at SG100 is that the system is comprehensive. With the diversity of fisheries within ICCAT, it cannot be concluded that the MCS system for all fisheries is comprehensive, although that may be the case for individual ICCAT-managed fisheries. The second performance review concluded that while ICCAT had made significant progress in strengthening its range of MCS measures, it does not possess sufficient mechanisms for effective at-sea monitoring of fishing operations for most stocks (Spencer et al. 2016). SG100 is not met.

3.2.3.b Sanctions		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Sanctions to address non-compliance exist within the UoA.	Sanctions to deal with non-compliance exist, that are appropriate to the UoA, and are applied.	Comprehensive sanctions to address non-compliance exist, that are appropriate to the UoA, and are consistently applied.

As follows from the above, sanctions for infringements committed in the ICCAT Convention Area must be imposed by the flag state. The only exception is if UoA catch is landed in other states than the flag state, in which case the port state may impose sanctions if domestic legislation is violated.

Sanctions are applied to vessels that violate fishing regulations. ICCAT notifies flag states of non-compliant vessels, which the flag states then order to withdraw from the Convention Area.

The blacklisting of non-member vessels (IUU lists) has become a widespread practice among all RFMOs, including ICCAT.

Sanctions to address non-compliance exist at national level in flag states that take part in the fishery. SG60 is met. Information on sanctions in the fishery are usually provided by the inspecting states, although other sources of information may also exist.

There is also evidence from flag states that sanctions are applied and that they are appropriate to the UoA. SG80 is met.

There is not sufficient evidence to conclude that comprehensive sanctions exist and are consistently applied. SG100 is not met. However, this highest performance score may be achieved for some fisheries, depending on data available on sanctions in the respective flag and port states.

3.2.3.c Compliance (information)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Information is adequate to **broadly understand** compliance in the UoA.	Information is adequate to **estimate** compliance in the UoA with a **high degree of accuracy**.	Information is adequate to **estimate** compliance in the UoA with a **very high degree of accuracy**.

The Evidence Requirement Framework (ERF) must be applied in assessing this SI (MSC Fisheries Standard Toolbox v1.2). To evaluate the trueness of the information available on compliance in the fishery, the level of bias and how it is mitigated must be determined using the Objectivity, Relevance, Completeness and Consistency (ORCC) test. The fishery is then scored against three Trueness Guideposts (TG 1, 2 and 3), which correspond to the scoring guideposts at SG60, SG80 and SG100.

For the fishery to meet SG60, information must be adequate to broadly understand compliance in the fishery, which under TG1 is defined as follows: 'There is potential for bias to exist in the information, but its effect on trueness can be anticipated and is not considered to be consequential.' It is not a priori possible to know what kind of information on compliance will be available in specific MSC assessments. Typically, that will be, at best, numbers of inspections and infringements provided by the relevant enforcement agency – often, it is just a more general statement by the authorities on the general level of compliance in the fishery. Using the ORCC test, such information will score relatively high on the objectivity indicator since the information comes from independent verification by enforcement agencies. The information will normally also be relevant, but very rarely does such information have a high level of detail, e.g. on numbers of infringements with different types of regulations by different types of vessels. Information will then seldom score highly on the completeness indicator, and with limited sources it is difficult to assess the information against the consistency indicator. In sum, it might be concluded that the effects of bias on trueness can be anticipated and are not considered to be consequential; hence, TG1 is met. This corresponds to an SG60 score, and it can be concluded that information is adequate to broadly understand compliance in the UoA. SG60 is met. It must be emphasised that this presupposes the existence of at least some independent information on compliance in the fishery, notably from national enforcement agencies. If there is no independently verified information on compliance, but, for instance, only information provided by the clients themselves, the fishery will score lowly also on the objectivity indicator, and TG1/SG60 might not be met.

It should be noted that an SG60 score is not guaranteed for ICCAT. The second performance review of ICCAT noted that very limited information is available on vessel compliance, as the Compliance Committee primarily focuses on reviewing Contracting Parties' compliance with data submission to

ICCAT. The review panel recommends that this task is taken over by the Secretariat and that the Compliance Committee should focus more on vessel compliance (Spencer et al. 2016).

To achieve an SG80 score, information must be adequate to estimate compliance in the UoA with a high degree of accuracy. To meet the TG2 requirement under the ERF, there must be limited potential for bias in the information, and where it might exist, its effect on trueness must be broadly understood, and it must not be considered consequential. Based on what kind of information is typically available on compliance in the RFMO-managed tuna fisheries, this requirement is not likely to be met. If information may be relatively objective and relevant, it will seldom be complete, which requires detailed inspection and infringement statistics preferably corroborated by other sources of information such as independent reviews or research, which also makes it difficult to assess consistency (between sources of information). It cannot be concluded that information is adequate to estimate compliance in the UoA with a high degree of accuracy. SG80 is not met.

3.2.3.d Compliance (outcome)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Systematic non-compliance of regulations specific to governing sustainable fishing practices on the water is not evident within the UoA.	Majority of regulations, including all regulations specific to governing sustainable fishing practices on the water, are **likely** to be complied with.	Majority of regulations, including all regulations specific to governing sustainable fishing practices on the water, are **consistently** complied with.

As said above, information on compliance must come from national enforcement agencies. Limited information on fisher/vessel compliance is publicly available on the ICCAT website as most compliance information relates to state compliance with ICCAT requirements.

As per 2025, there are 182 vessels on the ICCAT IUU vessel list (ICCAT 2025). The vast majority have unknown flag, but a few are flagged to different states in Africa and Asia – the largest flag states on the list are India with 27 vessels, Sri Lanka with 7 vessels and Cameroon with 3 vessels.

There are compliance issues in ICCAT fisheries, but this does not seem to constitute systematic non-compliance. SG60 is met. It should be noted, however, that this is no guarantee that SG60 will be met in each MSC assessment; there might well appear information on systematic non-compliance in specific assessments/UoAs.

There is not enough evidence to conclude that the majority of regulations, including all regulations specific to governing sustainable fishing practices on the water (such as catch limits and gear and area regulations), are likely to be complied with. Notably, information on compliance *rates*, which require information about both the number of inspections and the number of detected infringements, is not readily available, if at all. As noted under SI 3.2.3c above, the second performance review of ICCAT concluded that too little information is available on vessels compliance and that the Compliance Committee should focus less on states' compliance with their reporting obligations to ICCAT and more on vessel compliance on the water (Spencer et al. 2016). SG80 is not met.

All SG60 were met, and 2 out of 4 SG80 were met.

PI 3.2.3 : 70

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P.3.2.4 Monitoring and management performance evaluation

3.2.4.a Evaluation coverage		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There are mechanisms in place to evaluate **some** parts of the fishery-specific management system.	There are mechanisms in place to evaluate **key** parts of the fishery-specific management system.	There are mechanisms in place to evaluate **all** parts of the fishery-specific management system.

ICCAT has extensive mechanisms in place to evaluate the management system as demonstrated by the various committees, panels and working groups that meet regularly and report their findings to

the Commission. Reports from meetings of the various bodies are available on the ICCAT website. Key CMMs are reviewed annually.

In 2007, the five tuna RFMOs agreed to undertake periodic reviews of performance against their objectives. The first performance review of ICCAT was published in 2009 (Hurry et al. 2009). The review panel consisted of one civil servant from a Cooperating Non-Contracting Party, as well as a (retired) law professor and a fisheries scientist from Contracting Parties. The review covered an evaluation of ICCAT's Basic Texts (Part I), with separate chapters of data collection and sharing, the ecosystem-based and precautionary approaches, compatibility of measures for areas within and beyond national jurisdiction, fishing allocations and opportunities, flag state duties, port state measures, enforcement, decision making, dispute settlement, relationships with other states, entities and international organisations, and the special requirements of developing states, among other things. Further, it contained an assessment of the achievement of ICCAT's objectives relating to fish stocks (Part II), with separate sections on target species; associated, dependent and by-catch species; and seabirds and turtles. Finally, there is an assessment of the achievements of ICCAT's objectives relating to fisheries management and the administration of ICCAT (Part III), with sections on CMMs, general practices, MCS and institutional practices.

The second performance review was published in 2016 (Spencer et al. 2016). It was written by a review panel consisting of a former Head of Delegation to tuna RMFOs, an independent scientist and a law professor, all from ICCAT Contracting Parties. The report has chapters on conservation and management, MCS, compliance and enforcement, governance, science, comparison with other RFMOs, and financial and administrative issues.

Hence, there are mechanisms in place to evaluate some parts of the fishery-specific management system. SG60 is met.

The issues subject to review are comprehensive and include key parts of the fishery-specific management system. SG80 is met.

It is a principal and methodological challenge to claim that *all* parts of a management system are subject to review. The external performance reviews were comprehensive, but the last one was conducted 9 years ago (in 2025), and even though there is scattered review of different elements of the management system also beyond the performance, the lack of updated holistic reviews the last decade makes it difficult to conclude that there are mechanisms in place to review all parts of the fishery-specific management system. Admittedly, it is SI 3.2.4b that deals with the frequency of reviews, while SI 3.2.4a concerns review coverage. However, the low frequency with which major reviews take place in this case also affects the review coverage at different times – at this time, coverage is not sufficient to conclude that all parts of the system are subject to review. SG100 is not met.

3.2.4.b Internal and/or external review		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The fishery-specific management system is subject to **occasional internal** review.	The fishery-specific management system is subject to **regular internal** and **occasional external review**.	The fishery-specific management system is subject to **regular** internal and external review.

As noted, the 2009 and 2016 performance reviews were formal external performance reviews that were conducted and have evaluated most parts of the management system (Hurry et al. 2009); Spencer et al. 2016).

While SI 3.2.4a concerns review coverage, SI 3.2.4b sets requirements for the frequency with which reviews, internal and external, take place. Reviews can be conducted at either national or international level as long as the essential parts of the fishery-specific management system. For all

practical purposes, the UoA fishery is managed at RFMO level, with national regulations implementing RFMO decisions and sometimes supplementing them. Since national legislation must at least give effect to decisions made at RFMO level, reviews at RFMO level will qualify as reviews of the fishery-specific management system without necessitating separate reviews at national level.

ICCAT is subject to regular internal review. This is demonstrated by the various committees, panels and working groups that meet regularly and report their findings to the Commission. SG60 is met, as well as the first criterion under SG80 (regular internal reviews).

Since at least occasional external reviews also take place, such as the ICCAT performance reviews in 2009 and 2016, SG80 is also met.

There is no specific requirement to how frequently reviews must be undertaken to qualify as regular, but the fact that the last review took place 9 years ago (writing in 2025), makes it difficult to conclude that the system is subject to regular external review. Based on the protocol from the last Commission meeting, there are no plans for a third review, as the section 'Final review of follow up on the Second Performance Review and consideration of the need for future Performance Review' has no information on future reviews (ICCAT 2024, p. 4). SG100 is not met.

All SG60 and SG80 were met, and 0 out of 2 SG100 were met.

PI 3.2.4 : 80

References

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Indian Ocean Tuna Commission

3.1 Governance and Policy

P.3.1.1 Legal and/or customary framework

3.1.1.a Compatibility of laws or standards with effective management		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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** that deliver management outcomes consistent with MSC Principles 1 and 2.

The focus of this PI is on whether there is an appropriate and effective legal and/or customary framework that is capable of delivering sustainability in the UoA(s) in accordance with P1 and P2.

At the national level an assessment will need to be made for the UoA(s) to provide evidence that there are national laws agreements and policies governing the actions of the authorities and actors involved in managing the UoA and that that effective regional and/or international cooperation creates a comprehensive cooperation under the obligations of UNCLOS Articles 63(2), 64, 118, 119, and UNFSA Article 8.

The management systems of all flag states of the UoA and all coastal states (i.e. states in whose national waters the fishery takes place) must be assessed under this scoring issue (SI), as well as any international management regime that is in place for the fishery. Since scoring elements are not used for Principle 3, the guideposts at each management level, including the national management system of *all* flag and coastal states, must be met for the fishery to achieve the score in question.

The Indian Ocean Tuna Commission (IOTC), an offshoot of the Indian Ocean Fisheries Commission (IOFC) from 1969, was established in 1993 under Article XIV of the Food and Agriculture Organization of the United Nations (FAO) Constitution, which places it 'under the general authority of [FAO] on such terms as may be agreed with the competent authorities of the organization concerned' (FAO 1945, Art. XIV), as the only one of the five tuna regional fisheries management organisations (RFMOs). The IOTC is mandated to manage highly migratory tuna and tuna-like species in an area stretching from eastern South Africa to eastern Australia and Indonesia (FAO statistical areas 51 and 57). Membership of IOTC is open to Indian Ocean coastal states and states or regional economic integration organisations that are members of the UN or one of its specialised agencies and are fishing for tuna in the Indian Ocean. Per 2025, there are 29 Contracting Parties, the majority of which are coastal states. Important non-coastal states and economic integration organisations are China, the EU and the Republic of Korea. There are three Subsidiary Bodies, which meet annually: the Compliance Committee, the Scientific Committee and the Standing Committee on Administration and Finance. Seven Working Parties (WPs) have been created to analyse technical problems related to the management goals of the IOTC: the WP on Billfish (WPB), the WP on Data Collection and Statistics (WPDCS), the WP on Methods (WPM), the WP on Neritic Tunas (WPNT), the WP on Temperate Tunas (WPTmT), the WP on Tropical Tunas (WPTT), and the WP on Ecosystems and Bycatch (WPEB).

The founding agreement of IOTC (IOTC 1993) entered into force in 1996, and a secretariat located in Victoria, Republic of Seychelles, became operational in 1998. Sixteen species are under the management mandate of the IOTC, and Commission's secretariat collates data on non-target, associated and dependent species affected by tuna fishing operations, i.e. marine turtles, marine mammals, seabirds, sharks and fish species caught incidentally (bycatch). At the annual sessions of the Commission, members may adopt Conservation and Management Measures (CMMs) concerning the management of tuna and tuna-like species under the IOTC mandate as well as the fisheries which target them. These decisions are passed in the form of either Resolutions or Recommendations. Resolutions are binding on the members of IOTC, unless there is a specific objection on the part of a member, and they require a two-thirds majority of members present and voting. Recommendations are not binding and rely on voluntary implementation. Recommendations are adopted by simple majority.

Since the fishery is 'subject to international cooperation', it is scored according to the provisions in SA4.3.1(b) (SG60), SA4.3.2(b) (SG80) and SA4.3.3(b) (SG100) of the MSC Fisheries Standard v3.1. Presuming that there is an effective national legal system in place in the relevant flag and coastal states, the first requirement across SG60-SG100 is met. The international cooperation delivers at least the collection and sharing of scientific data, the scientific assessment of stock status and the development of scientific advice (SA4.3.1.1), and we can presume that the flag state has at least cooperative non-member status in IOTC (SA4.3.1.2). Hence, there is a framework for cooperation with other parties to deliver management outcomes consistent with MSC Principles 1 and 2. SG60 is met.

Cooperation is organised and effective in the sense that it delivers agreement and management actions consistent with management advice, as well as monitoring and control (SA4.3.2(b)(iii)). The flag state is presumed to be member of IOTC (SA4.3.2(b)(iv)). SG80 is met.

There are two additional requirements at SG100: that cooperation must be based on binding agreement (SA4.3.3(b)(ii)) and that management outcomes consistent with MSC Principles 1 and 2 are delivered (SA4.3.3(b)(iii)). The IOTC Convention is a binding agreement (treaty) acceded to by most relevant states engaged in the fisheries. However, Chinese Taipei (Taiwan) is an important fishing nation in the IOTC Convention Area, and since it is not a member of the UN or its specialised agencies, it cannot become a member of the IOTC. It has agreed to apply IOTC CMMs, but this is not enshrined in binding agreement, so the first criterion at SG100 is not met. Whether the second criterion is met, i.e. whether the system delivers management outcomes consistent with MSC Principles 1 and 2, must be assessed in the concrete situation and cannot be concluded for all times and contexts. SG100 is not met.

3.1.1.b Resolution of disputes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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, which is appropriate to the context of the fishery and has been **tested and proven to be effective**.

Disputes may arise at national level in the flag and coastal states of the UoA fishery or at international level in IOTC, and dispute resolution mechanisms must exist at both levels. In the following, it is presumed that SG100 is met for the national level.

The IOTC Agreement (IOTC 1993) has a provision on interpretation and settlement of disputes (Art. XXIII). According to this provision, disputes concerning the interpretation of the Agreement, if not settled by the Commission, shall be referred for settlement to a conciliation procedure to be adopted by the Commission. The results of such a conciliation procedure are not binding, but they are intended to become the basis for renewed consideration by the parties of the dispute. If the dispute is not settled as the result of this procedure, it may, according to Article XXIII, be referred to the International Court of Justice, unless the parties to the dispute agree to another method of settlement.

At the wider international level, disputes can be solved through the means available to the parties according to international law in general, and the law of the sea in particular. According to Article 27 of the UN Fish Stocks Agreement (UNFSA 1995), states have the obligation to settle their disputes by negotiation, inquiry, mediation, conciliation, arbitration, judicial settlement, resort to regional agencies or arrangements, or other peaceful means of their own choice. The Agreement, in Article 30, makes the provisions relating to the settlement of disputes in Part XV of the UN Law of the Sea Convention (UNCLOS 1982) applicable, *mutatis mutandis*, to any dispute between parties to the Agreement concerning the interpretation or application of a subregional, regional or global fisheries agreement relating to straddling fish stocks or highly migratory fish stocks to which they are parties, including any dispute concerning the conservation and management of such stocks, whether or not they are also parties to the Convention. According to the Convention's Articles 286-287, disputes must be submitted to one of the following compulsory dispute settlement mechanisms if peaceful means fail: i) the International Tribunal for the Law of the Sea (ITLOS) in Hamburg; ii) the

International Court of Justice (ICJ) in The Hague; iii) an Arbitral Tribunal in accordance with the Convention's Annex VII, which is the default option if no other method is chosen; or iv) a Special Arbitral Tribunal in accordance with the Convention's Annex VIII for particular technical disputes, e.g. relating to fisheries and the marine environment. Arbitration can be handled under the Permanent Court of Arbitration (PCA) in The Hague, which provides dispute resolution services to the international community.

Hence, the management system incorporates or is subject by law to mechanisms for the resolution of legal disputes arising within the system. SG60 is met.

The mechanisms are transparent in that any cases before national courts or international courts or tribunals would be publicly announced, and consultations within IOTC are transparent in that protocols and meeting minutes refer deliberations between parties and not only conclusions of discussions. The mechanisms are considered to be effective in dealing with most issues and are appropriate to the context of the UoA. This takes account of the fact that disputes are generally resolved within the established governance structure, primarily through consultation. SG80 is met.

The global dispute resolution mechanisms have generally been little used in fisheries disputes and more in jurisdictional disputes, but ITLOS Cases 3 and 4 concerned a fisheries dispute between Australia and New Zealand on the one hand and Japan on the other on the management of the Southern Bluefin tuna stock (ITLOS 1999). The fact that the ITLOS cases concerned another stock/RFMO than the UoA does not make it irrelevant here, as Component 3.1 relates to the overarching management framework of the fishery (here referring to dispute resolution mechanisms available at global level in the law of the sea), unlike Component 3.2, which is about the fishery-specific management system. However, these cases were limited in scope to the use of provisional measures according to UNCLOS Article 290. Following ITLOS's provisional measures, the parties proceeded with the formation of a UNCLOS Annex VII arbitral tribunal to settle the substantive legal issues. The tribunal, however, decided it did not have jurisdiction in the case as the dispute had arisen within the Commission for the Conservation of Southern Bluefin Tuna (CCSBT) and should have been settled using the dispute resolution mechanisms in that RFMO (Southern Bluefin Tuna Case 2000). In general, ITLOS has primarily been used to settle disputes on provisional measures and the prompt release of vessels following arrest in accordance with UNCLOS Article 292. It has not been tested and proven to be effective in solving disputes that more typically arise in international fisheries management, such as disputes between states on fishing rights, regulatory measures or enforcement and compliance. SG100 is not met. This does not necessarily preclude the opposite conclusion based on a more thorough assessment of the extent to which disputes have actually been solved through peaceful means such as consultation within IOTC. It is just that sufficient (systematically collected) evidence does not appear to be available at the present time.

3.1.1.c Respect for rights		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

Mechanisms to commit to the rights of people dependent on fishing for food and livelihood may exist at both national level in the flag states and at international level in IOTC. The management system of coastal states (which are not flag states in the fishery) is less relevant here. It is normally the combined effects of measures at national and international level that have to be assessed, although it is possible that measures at just one of these levels are sufficient to reach a specific guidepost.

The IOTC Agreement states that the Commission shall 'keep under review the economic and social aspects of the fisheries based on the stocks covered by this Agreement bearing in mind, in particular, the interests of developing coastal states (IOTC 1993, Art. 5(d)). A main interest cleavage within IOTC is between the coastal states, including several small island developing states, and the distant water fishing nations. The latter have traditionally been the most important fishing nations, even though the share of artisanal fisheries in the IOTC area is higher than in those of the other tuna RFMOs. The founding agreement of the IOTC does not include provisions for allocation of quotas. Formal discussions on a quota allocation mechanism were initiated in 2010, and in 2011 the IOTC Technical Committee on Allocation Criteria (TCAC) was established. Discussions have been ongoing since, with various proposals being put forward by the distant water fishing nations fronted by the EU on the one hand and small coastal states on the other, in recent years represented by the Maldives, as well as by the Group of Like-Minded Coastal States (G16), established in 2011 by 16 existing and future members of the IOTC. With discussions mainly revolving around the weighting of historical catch in quota allocation, a main area of contention has been whether historical catch within the EEZ shall be attributed to the coastal state or the flag state for the purposes on determining quota allocation (Seto et al. 2020; Sinan and Bailey 2020). In 2024, a draft proposal for an allocation regime was published on the IOTC website (IOTC 2024b). As one of its Guiding Principles, Art. 3(5) states that the Commission shall 'take into account the challenges and disproportionate burden faced by developing coastal States in fulfilling their obligations to implement and comply with the IOTC Agreement and CMMs, including the implementation of this Resolution, in particular by Small Island Developing States and least developed States who are vulnerable due to their socio-economic dependency on IOTC fish stocks including for food security, and shall take into account these challenges and their special requirements: (a) by factoring these needs and dependency when establishing their allocations, and, (b) by identifying ways in which IOTC Members may, through the IOTC Secretariat, assist those States in implementing these obligations'. At a general level, the relative power of the coastal states is considered to have increased since the creation in 2011 of the G16, reflected, e.g., in their influence in shaping the CMMs (Sinan et al. 2022).

Hence, 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. SG60 is met.

As these rights are not only 'considered' (which reflects the SG60 requirement of these rights being respected; cf. SA4.3.6) but are 'observed' in the sense that there are formal arrangements in place within the legal system to secure them (cf. SA4.3.7), SG80 is met.

As there is no formal allocation scheme in place, there is no 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. SG100 is not met.

All SG60 and SG80 were met, and 0 out of 3 SG100 were met.

PI 3.1.1 : 80

References

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P.3.1.2 Consultation, roles and responsibilities

3.1.2.a Roles and responsibilities		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

The requirements under this SI must be met for both the international level and for the national management system in the relevant flag states. In the following, it is assumed that SG100 is met for the national level, so the final score will depend on how the international level is assessed. The management system of coastal states (which are not flag states in the fishery) is less relevant for this PI.

At RFMO level, the IOTC Convention defines the functions, roles and responsibilities of the IOTC Commission with its Compliance Committee, Scientific Committee and Standing Committee on Administration and Finance, as well as the seven Working Parties (WPs) and other committees and working groups.

Hence, organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are generally understood. SG60 is met.

Since they are described in international treaty and national legislation in flag states, the functions, roles and responsibilities are explicitly defined and well understood for key areas or responsibility and interaction. SG80 is met.

It is a principal and methodological challenge to conclude that functions, roles and responsibilities are well understood for *all* areas of responsibility and interaction, and a precautionary scoring warrants the conclusion that SG100 is not met. The highest performance level may be achieved, however, if the assessment team probes thoroughly into stakeholders' understanding of functions, roles and responsibilities during the assessment and at the site visit, in particular.

3.1.2.b Consultation processes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 accep**t 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**.

In the IOTC, consultations take place within the Commission's sub-commissions and subsidiary bodies, which are supposed to serve as platforms for 'consultation and cooperation' (IOTC 1993, Art. XII(4)) as well as with preapproved observers who may attend sessions in the Commission (IOTC 2023, Art. XIV). Observers can be broadly categorised into other states (North Korea, the Russian Federation, the United Arab Emirates, and the USA), invited experts (Taiwan) and a long list of intergovernmental and NGOs. (A more fine-meshed categorisation of observers is found in the IOTC Rules of Procedure, Rule 1: Definitions.) The majority of the intergovernmental organisations are other RFMOs (tuna and non-tuna), as well as representatives of international environmental agreements, such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Among the NGOs are a large number (56 as per 2025) of environmental and fisheries NGOs at global, regional and national levels. As a general rule, observers can attend meetings in the Commission; if the Commission decides to hold a private meeting, the scope of such a meeting shall be clearly defined with respect to observers. As for the committees and other subordinate bodies, meetings are generally reserved for national delegations unless otherwise decided by the Commission (IOTC 2023, Rule VI: Meetings of the Commission). But NGOs and other stakeholders can be included in national delegations, so they are not excluded from these meetings. According to Rule XIV of the Rules of Procedure, observers may attend the plenary meetings of the Commission unless expressly determines otherwise. Observer nations and Observer Associate Members may submit memoranda and participate without vote in the discussions. Observer Non-Member States of FAO as well as Observer intergovernmental organisations or Observer NGOs may be invited by the Commission to submit memoranda and deliver oral statements.

Hence, the management system includes consultation processes that obtain relevant information from the main affected parties, including local knowledge, to inform the management system. This happens through the established consultation mechanisms at national and international level. SG60 is met.

Consultations take place on a regular basis, and the management system demonstrates consideration of the information obtained, as reflected in protocols and minutes from meetings. The requirement here is not that the authorities necessarily accept the positions of stakeholders, but that they allow them to be presented and listened to. SG80 is met.

It cannot be concluded by default that the management system explains how information obtained from stakeholders is used or not used. SG100 is not met. The highest performance level may be achieved, however, if the assessment team probes thoroughly into stakeholders' perceptions of the adequacy of information from the management system during the assessment and at the site visit, in particular.

3.1.2.c Participation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

As follows from SI 3.1.2b above, the consultation process provides opportunity for all interested and affected partis to be involved in Commission and subsidiary body meetings in IOTC, where there is extensive stakeholder participation. SG80 is met.

Organisations with an interest in the fishery are not only given the opportunity to be involved. They are actively encouraged, and their participation is facilitated by IOTC, e.g. in connection with meetings in the Commission and the subsidiary bodies. SG100 is met.

All SG60 and SG80 were met, and 1 out of 3 SG100 were met.

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References

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P.3.1.3 Longterm objectives

3.1.3.a Objectives		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 the MSC Fisheries Standard and the **precautionary approach**, are **explicit** within **management policy**.	**Clear** long-term objectives that guide decision-making, consistent with the MSC Fisheries Standard and the **precautionary approach**, are **explicit** within **and required by** management policy.

This PI also sets requirements that have to be met for both the international and national management systems, for the latter including all flag and coastal states.

The objective of the IOTC is to 'maintain stocks in perpetuity and with high probability, at levels not less than those capable of producing their maximum sustainable yield as qualified by relevant environmental and economic factors including the special requirements of developing States in the IOTC area of competence' (IOTC Res. 15/10, Preamble). In 2012, the Commission adopted Resolution 12/01, On the Implementation of the Precautionary Approach (IOTC Res. 12/01). Referring to UNFSA, in particular its provisions on the adoption of provisional reference points when information for establishing reference points is absent or poor, as well as the FAO Code of Conduct for Responsible Fisheries (FAO 1995), the Resolution states that the Commission shall '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 utilisation of fisheries resources as set forth in Article V of the IOTC Agreement' (Art. 1), and further that, 'In applying the precautionary approach, the Commission shall adopt, after due consideration of the advice supplied by the IOTC Scientific Committee, a) stock-specific reference points (including, but not necessarily limited to, target and limit reference points), relative to fishing mortality and biomass, and b) associated harvest control rules , that is, management actions to be taken as the reference points for stock status are approached or if they are breached' (Art. 2). Interim reference points for the most important species were set in 2015, replacing provisional reference points set in 2013, which were now considered not to be consistent with FAO and UNFSA guidelines (IOTC Res. 15/10).

Hence, clear long-term objectives that guide decision-making, consistent with the MSC Fisheries Standard and the precautionary approach, are explicit within management policy. SG60 and SG80 are met.

It may not seem quite clear what the difference is between objectives being 'explicit within', which is the SG80 requirement, and 'required by', which is the additional SG100 requirement (while it is clear that this PI only concerns whether objectives exist, not whether they are applied in practice, which is at issue in SI 3.2.2c and various places under Principles 1 and 2). A precautionary interpretation of the latter term implies that not only must precautionary objectives exist in the management system (e.g. in an international agreement or in general fisheries legislation at national level); there must be a requirement (again, e.g., in international agreement or general national legislation) that precautionary objectives must exist also at lower levels in fisheries legislation, such as in management plans and other regulatory documents. Since IOTC resolutions explicitly call for precautionary reference points, it can be argued that even this restrictive interpretation of the SG100 guidepost is met. SG100 is met.

All SG60, SG80 and SG100 were met.

PI 3.1.3 : 100

References

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3.2 Fishery Specific Management System

P.3.2.1 Fishery-specific objectives

3.2.1.a Objectives		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Objectives, which are broadly consistent with achieving the outcomes expressed by MSC Principles 1 and 2, are **implicit** within the fishery-specific management system.	**Short and long-term objectives**, which are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, are **explicit** within the fishery-specific management system.	**Well-defined and measurable short- and long-term objectives**, which are demonstrably consistent with achieving the outcomes expressed by MSC Principles 1 and 2, are **explicit** within the fishery-specific management system.

Fishery-specific objectives are normally found at RFMO level, although they may be supplemented by (and usually implemented in) national legislation in flag and/or coastal states. It is sufficient that fishery-specific objectives are found explicitly at one of these levels as long as they are intended to apply (or in practice apply) to the other level as well.

The objectives of IOTC are found in the IOTC Agreement and, in particular, in the various CCMs. As laid out under PI 3.1.3 above, the main objective of the IOTC is to 'maintain stocks in perpetuity and with high probability, at levels not less than those capable of producing their maximum sustainable yield' (IOTC Res. 15/10, Preamble). Resolution 12/01 requires that IOTC shall 'apply the precautionary approach, in accordance with relevant internationally agreed standards' in implementing the objectives of the IOTC Agreement (IOTC Res. 12/01, Art. 1). More specific objectives, in turn implementing the overarching objectives of the IOTC Agreement and Resolution 12/01, are found in CMMs. Related to the target stock (P1), the most important objectives are reflected in Resolution 15/10 (IOTC Res. 15/10), which introduced interim reference points and harvest control rules for several of the most important stocks under IOTC management competence, including albacore. B_{TARGET} was set at B_{MSY}, F_{TARGET} at F_{MSY}, B_{LIMIT} at 0.40 B_{MSY}, and F_{LIMIT} at 1.40 F_{MSY}. Hence, the target for biomass and fishing mortality was set at maximus sustainable yield (MSY) and limit reference points calculated from that basis. The objectives for harvest control rules shall be: 'i. Maintain the biomass at or above levels required to produce MSY or its proxy and maintain the fishing mortality rate at or below F_{MSY} or its proxy; ii. Avoid the biomass being below B_{LIM} and the fishing mortality rate being above F_{LIM}' (Art. 6(b)). A final harvest control rule has been set for skipjack tuna, but not for albacore. As regards the fishery's ecosystem impacts (P2), relevant CMMs are: Resolution 23/06 on the conservation of cetaceans in IOTC fisheries (IOTC Res. 23/06), where the overarching objective is to conserve the cetaceans populations, and objectives to achieve this include ensuring the safe release of unintentionally caught cetaceans (Art. 3(a)) and improving the collection and submission of data to the IOTC Secretariat (Preamble); Resolution 19/02 on procedures on a fish aggregating devices (FADs) management plan (IOTC Res. 19/02), where the objective is to ensure that the use of FADs under the competence of IOTC should be managed to ensure the sustainability of fishing operations, e.g. in order to reduce juvenile catch of tunas (Preamble); Resolution 18/02 on management measures for the conservation of blue shark caught in association with IOTC fisheries (IOTC Res. 18/02), where the objective is to 'ensure the conservation

of the blue shark (Prionace glauca) stock in the Indian Ocean [and] that effective management measures are in place to support the sustainable exploitation of this stock in line with IOTC's Convention' (Art. 1); Resolution 17/05 on the conservation of sharks caught in IOTC fisheries (IOTC Res. 17/05), whose objective is 'improving the conservation and management of shark stocks' (Preamble) and in order to achieve that ensure full release all live sharks (Art. 4) and fully utilize all parts of dead shark (Art. 2); and Resolution 12/04 on the conservation of marine turtles (IOTC Res. 12/04), whose objective is to improve conservation of marine turtles, among other things by ensuring that fishers 'bring aboard, if practicable, 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' (Art. 6).

Hence, the fishery-specific management system contains objectives that are broadly consistent with achieving the outcomes expressed by MSC Principles 1 and 2. SG60 is met.

All the objectives referenced above are explicit in IOTC CCMs, and they are short- and long-terms, as reflected in the P2-related objectives listed above, e.g. when a long-term objective is to conserve a species and short-term objectives to achieve this are to ensure safe release and better retention of improved reporting. SG80 is met.

As follows from the above, these objectives are also well defined, and they are measurable in the sense that their achievement can be monitored by scientific surveys and physical inspections by enforcement agencies. SG100 is met.

All SG60, SG80 and SG100 were met.

PI 3.2.1 : 100

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IOTC Res. 17/05. On the Conservation of Sharks Caught in Association with Fisheries Managed by IOTC (https://iotc.org/sites/default/files/documents/compliance/IOTC_-_Compendium_of_ACTIVE_CMMs_05_December_2024.pdf).

IOTC Res. 18/02. On Management Measures and Conservation of Blue Shark Caught in Association with IOTC Fisheries (https://iotc.org/sites/default/files/documents/compliance/IOTC_-_Compendium_of_ACTIVE_CMMs_05_December_2024.pdf).

IOTC Res. 19/02. Procedures on a Fish Aggregating Devices (FADs) Management Plan (https://iotc.org/sites/default/files/documents/compliance/IOTC_-_Compendium_of_ACTIVE_CMMs_05_December_2024.pdf).

IOTC Res. 23/06. On the Conservation of Cetaceans (https://iotc.org/sites/default/files/documents/compliance/IOTC_-_Compendium_of_ACTIVE_CMMs_05_December_2024.pdf).

P.3.2.2 Decision-making processes

3.2.2.a Decision-making processes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There are **some** decision-making processes in place that result in **measures** and **strategies** to achieve the fishery-specific objectives.	There are **established** decision-making processes that result in **measures** and **strategies** to achieve the fishery-specific objectives.	

This PI applies mainly to decision-making processes at RFMO level. Decision-making processes at national level may be relevant, but this level does not necessarily have to be assessed if decisions on management measures are mainly made at the international level.

At the most general level, some decision-making procedures are set out in the IOTC Agreement (IOTC 1993), notably that the Commission shall adopt conservation and management measures on the basis of scientific evidence (Art. V(c)). The Agreement also contains provisions in how the sessions in the Commission are to be carried out, including on voting and quorum (Art. IV, Art. VI; see also PI 3.1.1a above on procedures for the adoption of Resolutions and Recommendations). More detailed decision-making procedures are found in IOTC's Rules of Procedure (IOTC 2023), which contain chapters on, among other things, the setting of agendas for sessions in the Commission (Rule IV), the organisation of the sessions (Rule VI), voting arrangements (Rule X), the relationship between the Commission and the Sub-Commissions (Committees) (Rule XII) and the other subsidiary bodies (Working Parties) (Rule XIII), as well as participation by observers (Rule XIV). Particularly important is the interaction between Commission on the one hand and the Scientific Committee and the Compliance Committee on the other, as witness in the promotion and formulation on CMMs on, e.g., harvest control rules, conservation of ecosystem elements and MCS initiatives.

Hence, there are some decision-making processes in place that result in measures and strategies to achieve the fishery-specific objectives. SG60 is met.

The decision-making processes are established in the sense that they can be immediately triggered for fisheries-related issues, have been triggered in the past and have led to decisions about sustainability in the fishery (GSA4.8). Examples of that is how the shortcomings identified in performance reviews have been followed up by the Commission, such as the introduction of the precautionary approach (IOTC, First Performance Review, 2009; IOTC, Resolution 15/10, as well as how CMMs are continuously issued to address challenges related to stock status, ecosystem impact and IUU fishing identified by the IOTC. Further, decision-making procedures are recognised by stakeholders in the fishery and have proved durable (GSA4.8). SG80 is met.

3.2.2.b Responsiveness of decision-making processes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

It follows from the above that 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. This is evident in the interaction between the Commission and the Scientific Committee and the Compliance Committee, where problems can either be identified by the Commission and referred to one of the committees for further investigation, or identified by one of the committees and referred to the Commission for high-level discussions and decision making. As follows from the long list of CMMs on issues related to target stock management, ecosystem impact and compliance challenges, this includes both serious and other important issues. Many of the recommendations of the two performance review reports (IOTC 2009, 2016) have been followed up, e.g. the introduction of port state measures (IOTC Res. 16/11). SG60 and SG80 are met.

It cannot be concluded that *all* issues are necessarily responded to in a timely and adaptive manner. SG100 is not met.

3.2.2.c Use of precautionary approach		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	Decision-making processes use the **precautionary approach** and are based on best available information.	

As accounted for under PIs 3.1.3 and 3.2.1 above, the precautionary approach has been formally adopted by IOTC as mandatory basis for making decisions about conservation and management of fish stocks and their environment. See, in particular, IOTC Res. 12/01 and IOTC Res. 15/10.

This requirement to use the best scientific information available is put forward in the IOTC Convention and in IOTC Res. 12/15, and it is clearly implemented. There is evidence from the large number of meetings that have been conducted and reports written for the Commission which provide analyses and advice based on all the available information.

Overall, IOTC decision-making processes are based on the best available information and the precautionary approach. SG80 is met.

3.2.2.d Accountability and transparency of management system and decision-making process		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Some information on the fishery's performance and management action is generally available on request to stakeholders.	**Information on the fishery's performance and management action is available on request**, and explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation, and review activity.	Formal reporting to all interested stakeholders **provides comprehensive information on the fishery's performance and management actions** and describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation, and review activity.

The IOTC website has extensive information on the working of the Commission and its subsidiary bodies, such as detailed meeting documents. As this includes at least at least general summaries of information on allocation, compliance and fisheries management decisions (SA4.8.4.1), SG60 is met.

In the detailed protocols and minutes from meetings in the Commission and its subsidiary bodies, explanations are provided for action or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity. This is ensured, for instance, by the practice of providing the views of all members with an opinion on a matter instead of just the conclusions of discussions. SG80 is met.

The posting of protocols and minutes amounts to formal reporting to all interested stakeholders as much as distribution by post or email would have done. The detailed information provided in these documents, reflecting the views of all states that take part in a discussion, can be characterised as relatively comprehensive, but some information is password protected and only available to those who have been given access. SG100 is not met.

3.2.2.e Approach to disputes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 of the fishery.	The management system or UoA is attempting to comply in a timely fashion with judicial decisions arising from any legal challenges.	The management system or UoA acts proactively to avoid legal disputes or rapidly implements judicial decisions arising from legal challenges.

The management authority and the fishery are not subject to continuing court challenges. Nor are they indicating a disrespect of defiance of the law by repeatedly violating the same law or regulation necessary for the sustainability of the fishery. SG60 is met.

If taken to court by fishing companies, the management authority will comply with the judicial decision in a timely manner in accordance with the formal procedures laid down in the fisheries acts

and general legislation on the distribution of power in each flag/coastal state. This includes that if management authorities lose a court case, they will accept the verdict. SG80 is met.

The management authority works proactively to avoid legal disputes through the tight cooperation with user-groups and other stakeholders at the regulatory level, ensuring as high legitimacy as possible for regulations and other management decisions; see SI 3.1.2b above. SG100 is met.

All SG60 and SG80 were met, and 1 out of 3 SG100 were met.

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P.3.2.3 Compliance and enforcement

3.2.3.a MCS system		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
MCS **mechanisms** exist within the UoA.	An MCS **system** exists within the UoA.	A **comprehensive** MCS system is well-established within the UoA.

Monitoring, control and enforcement (MCS) is undertaken by states since it is states that have the jurisdiction to do so and that possess and operate patrol vessels. Coastal states have exclusive MCS jurisdiction in waters under national jurisdiction (internal waters, territorial sea and EEZ), while only flag states have traditionally had the jurisdiction to enforce regulations for vessels flying their flag on the high seas. The UN Fish Stocks Agreements changed this by mandating RFMOs to allow for any convention party to conduct inspections of any fishing vessels on the high seas within the respective convention area (UNFSA 1995, Art. 21(1)).

The IOTC Compliance Committee was established in 2002 and strengthened by revisions of its Terms of Reference in 2009, now included as an appendix to the IOTC Rules of Procedure (IOTC 2023). The main role of the Compliance Committee is to review compliance with IOTC CCMs based on information provided by member states as well as other resources, make assessment of compliance and identify shortcomings, and make recommendations to the Commission on actions to be taken to strengthen compliance. The Compliance Committee is administratively supported by a Compliance Section at the Secretariat and the Working Party on Data Collection and Statistics. Notably, this relates mainly to state compliance with IOTC obligations, although compliance at vessel level is also monitored and reviewed.

In the 2000s, IOTC introduced several Resolutions aimed at implementing UNFSA's requirements to flag and port states, including obligations regarding vessel documentation and marking (IOTC Res. 19/04); procedures for inspection in port (IOTC Res. 05/03); the establishment of a list of vessels presumed to have carried out IUU fishing in the IOTC area (IOTC Res. 15/01); the establishment of a vessel monitoring system (VMS) program (IOTC Res. 15/03); and the establishment of a record of vessels authorised to operate in the IOTC area (IOTC Res. 19/04). In the first performance review of IOTC, the review panel noted that IOTC had made progress within MCS, but that the vessel record did not fully meet UNFSA requirements; that the IUU Resolution only applied to non-members; and that compliance with VMS requirements was low (IOTC 2009). These shortcomings were addressed by the Commission in the following years, reflected in the mentioned Resolutions that have superseded the original Resolutions, incorporating revisions to follow up the performance review panel's recommendations. A further response to the recommendations of the review panel was the introduction in 2011 of an observer scheme (IOTC Res. 24/04). A major achievement was the port state measures introduced in 2016, aimed at implementing the FAO Port State Measures Agreement (PSMA) (FAO 2009) in an IOTC context (IOTC Res. 16/11). Finally, electronic monitoring (EM) standards were introduced in 2023 (IOTC Res. 23/08). As a result of these developments, a number of obligations have been laid on flag states involved in fishing in the IOTC area, on port states that receive catches taken from the area, and to some extent also on coastal states in waters under national jurisdiction within the IOTC area. Notably, states are subject to a legal duty to cooperate in MCS activities in the IOTC area, e.g. through exchange of information on catches and landings and inspections in port and at sea. Vessels above 24 meters in length are required to have VMS when fishing in the IOTC area; on the high seas this requirement also applies to vessels below 24 meters. States are obliged to ensure at least 5 % observer coverage of vessels above 24 meters within the IOTC area and of vessels below 24 meters also when they fish on the high seas. The PSMA requirement regarding the level of inspections in port has been operationalised by IOTC as a requirement of port states to physically inspect at least 5 % of annual landings from the IOTC area.

IOTC also has a programme for capacity building within MCS (IOTC Res. 24/10), which includes a fund used to assist member states in implementing their MCS obligations (Art. 1).

Hence, MCS mechanisms exist within the UoA. SG60 is met.

The mechanisms qualify as a system. SG80 is met.

The additional requirement at SG100 is that the system is comprehensive. Although the legislative basis within IOTC has become relatively comprehensive over the last decade, it is less certain that actual inspection activities on the water and in port is. SG100 is not met.

3.2.3.b Sanctions		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Sanctions to address non-compliance exist within the UoA.	Sanctions to deal with non-compliance exist, that are appropriate to the UoA, and are applied.	Comprehensive sanctions to address non-compliance exist, that are appropriate to the UoA, and are consistently applied.

As follows from the above, sanctions for infringements committed in the IOTC Convention Area must be imposed by the flag state. The only exception is if UoA catch is landed in other states than the flag state, in which case the port state may impose sanctions if domestic legislation is violated.

Sanctions are applied to vessels that violate fishing regulations. IOTC notifies flag states of non-compliant vessels, which the flag states then order to withdraw from the Convention Area.

The blacklisting of non-member vessels (IUU lists) has become a widespread practice among all RFMOs, including IOTC.

Sanctions to address non-compliance exist at national level in flag states that take part in the fishery. SG60 is met. Information on sanctions in the fishery are usually provided by the inspecting states, although other sources of information may also exist.

There is also evidence from flag states that sanctions are applied and that they are appropriate to the UoA. SG80 is met.

There is not sufficient evidence to conclude that comprehensive sanctions exist and are consistently applied. SG100 is not met. However, this highest performance score may be achieved for some fisheries, depending on data available on sanctions in the respective flag and port states.

3.2.3.c Compliance (information)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Information is adequate to **broadly understand** compliance in the UoA.	Information is adequate to **estimate** compliance in the UoA with a **high degree of accuracy**.	Information is adequate to **estimate** compliance in the UoA with a **very high degree of accuracy**.

The Evidence Requirement Framework (ERF) must be applied in assessing this SI (MSC Fisheries Standard Toolbox v1.2). To evaluate the trueness of the information available on compliance in the fishery, the level of bias and how it is mitigated must be determined using the Objectivity, Relevance, Completeness and Consistency (ORCC) test. The fishery is then scored against three Trueness Guideposts (TG 1, 2 and 3), which correspond to the scoring guideposts at SG60, SG80 and SG100.

For the fishery to meet SG60, information must be adequate to broadly understand compliance in the fishery, which under TG1 is defined as follows: ‘There is potential for bias to exist in the

information, but its effect on trueness can be anticipated and is not considered to be consequential.' It is not a priori possible to know what kind of information on compliance will be available in specific MSC assessments. Typically, that will be, at best, numbers of inspections and infringements provided by the relevant enforcement agency – often, it is just a more general statement by the authorities on the general level of compliance in the fishery. Using the ORCC test, such information will score relatively high on the objectivity indicator since the information comes from independent verification by enforcement agencies. The information will normally also be relevant, but very rarely does such information have a high level of detail, e.g. on numbers of infringements with different types of regulations by different types of vessels. Information will then seldom score highly on the completeness indicator, and with limited sources it is difficult to assess the information against the consistency indicator. In sum, it might be concluded that the effects of bias on trueness can be anticipated and are not considered to be consequential; hence, TG1 is met. This corresponds to an SG60 score, and it can be concluded that information is adequate to broadly understand compliance in the UoA. SG60 is met. It must be emphasised that this presupposes the existence of at least some independent information on compliance in the fishery, notably from national enforcement agencies. If there is no independently verified information on compliance, but, for instance, only information provided by the clients themselves, the fishery will score lowly also on the objectivity indicator, and TG1/SG60 might not be met.

To achieve an SG80 score, information must be adequate to estimate compliance in the UoA with a high degree of accuracy. To meet the TG2 requirement under the ERF, there must be limited potential for bias in the information, and where it might exist, its effect on trueness must be broadly understood, and it must not be considered consequential. Based on what kind of information is typically available on compliance in the RFMO-managed tuna fisheries, this requirement is not likely to be met. If information may be relatively objective and relevant, it will seldom be complete, which requires detailed inspection and infringement statistics preferably corroborated by other sources of information such as independent reviews or research, which also makes it difficult to assess consistency (between sources of information). It cannot be concluded that information is adequate to estimate compliance in the UoA with a high degree of accuracy. SG80 is not met.

3.2.3.d Compliance (outcome)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Systematic non-compliance of regulations specific to governing sustainable fishing practices on the water is not evident within the UoA.	Majority of regulations, including all regulations specific to governing sustainable fishing practices on the water, are **likely** to be complied with.	Majority of regulations, including all regulations specific to governing sustainable fishing practices on the water, are **consistently** complied with.

As said above, information on compliance must come from national enforcement agencies. Limited information on fisher/vessel compliance is publicly available on the IOTC website as most compliance information relates to state compliance with IOTC requirements.

According to the Report of the 22nd Session of the Compliance Committee, the IOTC Secretariat had been notified of IUU fishing by 7 vessels in the reporting year: 5 from Sri Lanka and 1 each from China and India (IOTC 2025a). As per 2025, there are 203 vessels on the IOTC IUU vessel list (IOTC 2025b). The vast majority have unknown flag, but a few are flagged to different states in Africa and Asia – the largest flag state on the list is India, with 26 vessels. India has applied to have the vessels removed from the list, but the issue has not been solved yet (IOTC 2025a).

Hence, there are compliance issues in the fishery, but this does not seem to constitute systematic non-compliance. SG60 is met. It should be noted, however, that this is no guarantee that SG60 will

be met in each MSC assessment; there might well appear information on systematic non-compliance in specific assessments/UoAs.

There is not enough evidence to conclude that the majority of regulations, including all regulations specific to governing sustainable fishing practices on the water (such as catch limits and gear and area regulations), are likely to be complied with. Notably, information on compliance *rates*, which require information about both the number of inspections and the number of detected infringements, is not readily available, if at all. SG80 is not met.

All SG60 were met, and 2 out of 4 SG80 were met.

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P.3.2.4 Monitoring and management performance evaluation

3.2.4.a Evaluation coverage		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There are mechanisms in place to evaluate **some** parts of the fishery-specific management system.	There are mechanisms in place to evaluate **key** parts of the fishery-specific management system.	There are mechanisms in place to evaluate **all** parts of the fishery-specific management system.

IOTC has extensive mechanisms in place to evaluate the management system as demonstrated by the various committees and working groups that meet regularly and report their findings to the Commission. As well as the annual Commission meetings, regular meetings include those for the Compliance Committee, the Scientific Committee and the Standing Committee on Administration and Finance. Reports from meetings of the various groups are available on the IOTC website. Key CMMs are reviewed annually.

In 2007, the five tuna RFMOs agreed to undertake periodic reviews of performance against their objectives. Two performance reviews have been conducted of IOTC. The first one was initiated in 2007 and finalised in 2009 (IOTC 2009). It was a comprehensive review carried out by a panel consisting of an independent expert scientist, and independent legal expert, representatives of six IOTC member states, and one NGO representative. The report included a legal analysis of the IOTC Agreement; a performance review within the areas of conservation and management, compliance and enforcement, decision making and dispute settlement, international cooperation and financial and administrative issues; as well as a compendium of recommendations within these issue areas. The second performance review was initiated in 2014 and completed in 2016 (IOTC 2016). This time the evaluation team was composed of an independent chairperson with legal fisheries expertise, an independent scientist, as well as six representatives of IOTC contracting parties, two NGO representatives, and representatives of two other RFMOs. The areas of evaluation were broadly the same as in the first performance review.

Hence, there are mechanisms in place to evaluate some parts of the fishery-specific management system. SG60 is met.

The issues subject to review are comprehensive and include key parts of the fishery-specific management system. SG80 is met.

It is a principal and methodological challenge to claim that *all* parts of a management system are subject to review. The external performance reviews were comprehensive, but the last one was conducted 9 years ago (in 2025), and even though there is scattered review of different elements of the management system also beyond the performance, the lack of updated holistic reviews the last decade makes it difficult to conclude that there are mechanisms in place to review all parts of the fishery-specific management system. Admittedly, it is SI 3.2.4b that deals with the frequency of

reviews, while SI 3.2.4a concerns review coverage. However, the low frequency with which major reviews take place in this case also affects the review coverage at different times – at this time, coverage is not sufficient to conclude that all parts of the system are subject to review. SG100 is not met.

3.2.4.b Internal and/or external review		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The fishery-specific management system is subject to **occasional internal** review.	The fishery-specific management system is subject to **regular internal** and **occasional external review**.	The fishery-specific management system is subject to **regular** internal and external review.

As noted, the 2009 and 2016 Performance Reviews were formal external performance reviews that were conducted and have evaluated most parts of the management system. Through Resolution 16/03, the Commission endorses that a Performance Review of the IOTC shall be carried out every five (5) years in line with the recommendations of the Kobe process, but this has not been followed up in practice.

While SI 3.2.4a concerns review coverage, SI 3.2.4b sets requirements for the frequency with which reviews, internal and external, take place. Reviews can be conducted at either national or international level as long as the essential parts of the fishery-specific management system. For all practical purposes, the UoA fishery is managed at IOTC level, with national regulations implementing RFMO decisions and sometimes supplementing them. Since national legislation must at least give effect to decisions made at RFMO level, reviews at RFMO level will qualify as reviews of the fishery-specific management system without necessitating separate reviews at national level.

IOTC is subject to regular internal review. This is demonstrated by the various committees and working groups that meet regularly and report their findings to the Commission. SG60 is met, as well as the first criterion under SG80 (regular internal reviews).

Since at least occasional external reviews also take place, such as the IOTC performance reviews in 2009 and 2016, SG80 is also met.

There is no specific requirement to how frequently reviews must be undertaken to qualify as regular, but the fact that the last review took place 9 years ago (writing in 2025), makes it difficult to conclude that the system is subject to regular external review. SG100 is not met.

All SG60 and SG80 were met, and 0 out of 2 SG100 were met.

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Western Central Pacific Fisheries Commission

3.1 Governance and Policy

P.3.1.1 Legal and/or customary framework

3.1.1.a Compatibility of laws or standards with effective management		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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** that deliver management outcomes consistent with MSC Principles 1 and 2.

The focus of this PI is on whether there is an appropriate and effective legal and/or customary framework that is capable of delivering sustainability in the UoA(s) in accordance with P1 and P2.

At the national level an assessment will need to be made for the UoA(s) to provide evidence that there are national laws agreements and policies governing the actions of the authorities and actors involved in managing the UoA and that that effective regional and/or international cooperation creates a comprehensive cooperation under the obligations of UNCLOS Articles 63(2), 64, 118, 119, and UNFSA Article 8.

The management systems of all flag states of the UoA and all coastal states (i.e. states in whose national waters the fishery takes place) must be assessed under this scoring issue (SI), as well as any international management regime that is in place for the fishery. Since scoring elements are not used for Principle 3, the guideposts at each management level, including the national management system of *all* flag and coastal states, must be met for the fishery to achieve the score in question.

The Western and Central Pacific Fisheries Commission (WCPFC) was established by the Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (WCPF Convention), which was adopted in 2000 and entered into force in 2004 (WCPFC 2000). The Convention was developed in direct response to the UN Fish Stocks Agreement (UNFSA 1995) and has the form of an implementing agreement for the Fish Stocks Agreement in the Western and Central Pacific Ocean. The Convention has sections on conservation and management of highly migratory fish stocks (Part II), the organisation and working of the Commission and its subsidiary bodies (Part III), the obligations of members of the Commission (Part IV), duties of the flag state (Part V), compliance and enforcement (Part VI), the regional observer program and regulations of transshipment (Part VII), requirements of developing states (Part VIII), peaceful settlement of disputes (Part IX), non-parties to the Convention (Part X), and good faith and abuse of rights (Part XI). Part III on organisation and working of the Commission has sections on the establishment, functions and subsidiary bodies of the Commission (Section 1), scientific information and advice (Section 2), the Technical and Compliance Committee (Section 3), the Secretariat (Section 4), financial arrangements (Section 5), decision-making procedures (Section 6) and transparency and cooperation with other organisations (Section 7). The Commission shall hold annual meetings (Art. 9), and among its functions are to determine TACs or fishing effort levels within the Convention Area (Art. 10(1)(a)) and to adopt CMMs and recommendations for non-target species and species dependent on or associated with the target species (Art. 10(1)(c)). Article 11 established two subsidiary bodies to the Commission: the Scientific Committee and the Technical and Compliance

Committee. The Scientific Committee reviews scientific data prepared for the Committee and makes recommendations on the regulation of the fishery (Art. 12), while the Technical and Compliance Committee monitors and reviews member states' compliance with CMMs and implementation of monitoring, control and surveillance (MCS) measures (Art. 13). A Northern Committee has later been established to make recommendations to the Commission on species that are mostly found in the Convention Area north of 20°N. As a general rule, decision making in the Commission shall be by consensus, understood as the absence of any formal objection made at the time the decision was taken (Art. 20). If all efforts to reach a decision by consensus have been exhausted, decisions by voting on questions of procedure shall be taken by a majority of those present and voting. Decisions on questions of substance shall be taken by a three-fourths majority provided that such a majority includes a three-fourths majority of the members of the Pacific Islands Forum Fisheries Agency (an intergovernmental agency established in 1979 to facilitate regional cooperation and coordination on fisheries policies between Pacific states), and a three-fourths majority of non-members of the Forum (Art. 20). As per 2025, the Commission has 26 Members, of which Canada, the EU, France and the USA are located outside the Convention Area. There are also 8 Participating Territories (including French Polynesia and unincorporated U.S. territory American Samoa) and 8 Cooperating Non-Members (including the Bahamas, Curaçao, Ecuador, El Salvador, Liberia and Panama from outside the Convention Area).

Since the fishery is 'subject to international cooperation', it is scored according to the provisions in SA4.3.1(b) (SG60), SA4.3.2(b) (SG80) and SA4.3.3(b) (SG100) of the MSC Fisheries Standard v3.1. Presuming that there is an effective national legal system in place in the relevant flag and coastal states, the first requirement across SG60-SG100 is met. The international cooperation delivers at least the collection and sharing of scientific data, the scientific assessment of stock status and the development of scientific advice (SA4.3.1.1), and we can presume that the flag state has at least cooperative non-member status in WCPFC (SA4.3.1.2). Hence, there is a framework for cooperation with other parties to deliver management outcomes consistent with MSC Principles 1 and 2. SG60 is met.

Cooperation is organised and effective in the sense that it delivers agreement and management actions consistent with management advice, as well as monitoring and control (SA4.3.2(b)(iii)). The flag state is presumed to be member of WCPFC (SA4.3.2(b)(iv)). SG80 is met.

There are two additional requirements at SG100: that cooperation must be based on binding agreement (SA4.3.3(b)(ii)) and that management outcomes consistent with MSC Principles 1 and 2 are delivered (SA4.3.3(b)(iii)). The WCPF Convention is a binding agreement (treaty) acceded to by (presumably) all relevant states engaged in the fisheries, so the first criterion at SG100 is met. Whether the system delivers management outcomes consistent with MSC Principles 1 and 2 must be assessed in the concrete situation and cannot be concluded for all times and contexts. SG100 is not met. That is, it is not met by default, but it might be achievable.

3.1.1.b Resolution of disputes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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, which is appropriate to the context of the fishery and has been **tested and proven to be effective**.

Disputes may arise at national level in the flag and coastal states of the UoA fishery or at international level in WCPFC, and dispute resolution mechanisms must exist at both levels. In the following, it is presumed that SG100 is met for the national level.

The WCPF Convention's Article 31 states that the provisions relating to the settlement of disputes set out in Part VIII of the UN Fish Stocks Agreement (UNFSA 1995) apply, *mutatis mutandis*, to any dispute between members of the Commission, whether or not they are also parties to the Agreement (WCPFC 2000). According to Article 27 of the Fish Stocks Agreement, states have the obligation to settle their disputes by negotiation, inquiry, mediation, conciliation, arbitration, judicial settlement, resort to regional agencies or arrangements, or other peaceful means of their own choice. The Agreement, in Article 30, makes the provisions relating to the settlement of disputes in Part XV of the UN Law of the Sea Convention (UNCLOS 1982) applicable, *mutatis mutandis*, to any dispute between parties to the Agreement concerning the interpretation or application of a subregional, regional or global fisheries agreement relating to straddling fish stocks or highly migratory fish stocks to which they are parties, including any dispute concerning the conservation and management of such stocks, whether or not they are also parties to the Convention. According to the Convention's Articles 286-287, disputes must be submitted to one of the following compulsory dispute settlement mechanisms if peaceful means fail: i) the International Tribunal for the Law of the Sea (ITLOS) in Hamburg; ii) the International Court of Justice (ICJ) in The Hague; iii) an Arbitral Tribunal in accordance with the Convention's Annex VII, which is the default option if no other method is chosen; or iv) a Special Arbitral Tribunal in accordance with the Convention's Annex VIII for special technical disputes, e.g. relating to fisheries and the marine environment. Arbitrations can be handled under the Permanent Court of Arbitration (PCA) in The Hague, which provides dispute resolution services to the international community.

Hence, the management system incorporates or is subject by law to mechanisms for the resolution of legal disputes arising within the system. SG60 is met.

The mechanisms are transparent in that any cases before national courts or international courts or tribunals would be publicly announced, and consultations within WCPFC are transparent in that protocols and meeting minutes refer deliberations between parties and not only conclusions of discussions. Article 21 of the WCPF Convention requires the Commission to promote transparency in its decision making, and the level of transparency is generally high in WCPFC (see SI 3.2.2d below). The mechanisms are considered to be effective in dealing with most issues and are appropriate to the context of the UoA. This takes account of the fact that disputes are generally resolved within the established governance structure, primarily through consultation. SG80 is met.

The global dispute resolution mechanisms have generally been little used in fisheries disputes and more in jurisdictional disputes, but ITLOS Cases 3 and 4 concerned a fisheries dispute between Australia and New Zealand on the one hand and Japan on the other on the management of the Southern Bluefin tuna stock (ITLOS 1999). The fact that the ITLOS cases concerned another

stock/RFMO than the UoA does not make it irrelevant here, as Component 3.1 relates to the overarching management framework of the fishery (here referring to dispute resolution mechanisms available at global level in the law of the sea), unlike Component 3.2, which is about the fishery-specific management system. However, these cases were limited in scope to the use of provisional measures according to UNCLOS Article 290. Following ITLOS's provisional measures, the parties proceeded with the formation of a UNCLOS Annex VII arbitral tribunal to settle the substantive legal issues. The tribunal, however, decided it did not have jurisdiction in the case as the dispute had arisen within the Commission for the Conservation of Southern Bluefin Tuna (CCSBT) and should have been settled using the dispute resolution mechanisms in that RFMO (Southern Bluefin Tuna Case 2000). In general, ITLOS has primarily been used to settle disputes on provisional measures and the prompt release of vessels following arrest in accordance with UNCLOS Article 292. It has not been tested and proven to be effective in solving disputes that more typically arise in international fisheries management, such as disputes between states on fishing rights, regulatory measures or enforcement and compliance. SG100 is not met. This does not necessarily preclude the opposite conclusion based on a more thorough assessment of the extent to which disputes have actually been solved through peaceful means such as consultation within WCPFC. It is just that sufficient (systematically collected) evidence does not appear to be available at the present time.

3.1.1.c Respect for rights		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

Mechanisms to commit to the rights of people dependent on fishing for food and livelihood may exist at both national level in the flag states and at international level in WCPFC. The management system of coastal states (which are not flag states in the fishery) is less relevant here. It is normally the combined effects of measures at national and international level that have to be assessed, although it is possible that measures at just one of these levels are sufficient to reach a specific guidepost.

WCPFC has a CMM on the special requirements of small island developing states and territories, which mainly calls for financial support to such states and territories in terms of capacity building, technology transfer and support for the domestic fisheries sector (WCPFC CMM 2013-07). Protection of rights is extended to dependent territories, such as French Polynesia and American Samoa. Furthermore, WCPFC maintains cooperation with the Pacific Islands Forum Fisheries Agency, which represents the interests of the independent island States in the region. The Commission includes 25 small island developing states and territories for which special provision is made through the Convention text and Resolution 2008-01 (WCPFC Res. 2008-01). In addition, there are a number of initiatives to develop the capacity of relevant nations to meet their responsibilities and fully participate in the management system. These activities of WCPFC are supported through the Special Requirements Fund (SRF) that was established for the purposes identified in the Convention Article 30: recognition of the special requirements of developing States. There is also a joint UNDP-WCPFC project with important East Asian nations developing capacity for the collection of fishery data. This

includes capacity to collect, maintain and analyse relevant data, and hence participate in, and contribute to WCPFC activities.

Hence, 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. SG60 is met.

As these rights are not only 'considered' (which reflects the SG60 requirement of these rights being respected; cf. SA4.3.6) but are 'observed' in the sense that there are formal arrangements in place within the legal system to secure them (cf. SA4.3.7), SG80 is met.

Formal allocation criteria have not been developed in WCPFC. The rights of small island states and territories depending on fish for food or livelihood may be observed in practice, but the lack of binding allocation criteria implies that they have no legal guarantee that their catch shares are maintained from one year to another. SG100 is not met.

All SG60 and SG80 were met, and 0 out of 3 SG100 were met.

PI 3.1.1 : 80

References

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WCPFC CMM 2025. Conservation and Management Measures, and Resolutions (https://cmm.wcpfc.int/).

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P.3.1.2 Consultation, roles and responsibilities

3.1.2.a Roles and responsibilities		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

The requirements under this SI must be met for both the international level and for the national management system in the relevant flag states. In the following, it is assumed that SG100 is met for the national level, so the final score will depend on how the international level is assessed. The management system of coastal states (which are not flag states in the fishery) is less relevant for this PI.

At international level, management authority clearly rests with the WCPFC Commission and its subsidiary bodies within the WCPFC Convention Area. In some fisheries, management responsibility may be divided with other RFMOs, such as between WCPFC in the western parts and IATTC in the eastern parts of the Pacific. Where there is spatial overlap, there is a clear separation of functions, roles and responsibilities in mutual agreements, such as the Memorandum of Understanding between IATTC and WCPFC (IATTC/WCPFC 2006). Within WCPFC, the functions, roles and responsibilities of the subsidiary bodies are clearly defined in the WCPF Convention (see SI 3.1.1a above).

Hence, organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are generally understood. SG60 is met.

Since they are described in international treaty and national legislation in flag states, the functions, roles and responsibilities are explicitly defined and well understood for key areas or responsibility and interaction. SG80 is met.

It is a principal and methodological challenge to conclude that functions, roles and responsibilities are well understood for *all* areas of responsibility and interaction, and a precautionary scoring warrants the conclusion that SG100 is not met. The highest performance level may be achieved, however, if the assessment team probes thoroughly into stakeholders' understanding of functions, roles and responsibilities during the assessment and at the site visit, in particular.

3.1.2.b Consultation processes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 accep**t 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**.

Article 21 in the WCPF Convention states that the Commission shall promote transparency in its decision-making processes and other activities and that representatives of intergovernmental organisations (IGOs) and NGOs concerned with matters relevant to the implementation of the Convention shall be given the opportunity to participate in the meetings of the Commission and its subsidiary bodies as observers or otherwise as appropriate (WCPFC 2000). As per 2025, there are 58 observers in WCPFC: 24 IGOs and 34 NGOs (in addition to three observer states which do not have status as Cooperating Non-Members: Mexico, Nicaragua and the UK). The IGOs are other RFMOs, governing bodies of international environmental agreements, UN agencies and regional interstate organisations in the Pacific region. The NGOs are mainly environmental organisations, but there is also an advocacy group for public interest law, a global law alliance and a migrant workers union. Observers may take part in meetings in the Commission and its subsidiary bodies and also provide written input to the meetings, but they do not participate in decision making.

As mentioned under SI 3.1.1c above, there are a number of initiatives to develop the capacity of relevant nations to meet their responsibilities and fully participate in the management system. These activities of WCPFC are supported through the Special Requirements Fund (SRF) that was established for the purposes identified in the Convention Article 30: recognition of the special requirements of developing States. There is also a joint UNDP-WCPFC project with important East Asian nations developing capacity for the collection of fishery data. This includes capacity to collect, maintain and analyse relevant data, and hence participate in, and contribute to WCPFC activities.

Hence, the management system includes consultation processes that obtain relevant information from the main affected parties, including local knowledge, to inform the management system. SG60 is met.

Consultations take place on a regular basis, and the management system demonstrates consideration of the information obtained, as reflected in protocols and minutes from meetings. The requirement here is not that the authorities necessarily accept the positions of stakeholders, but that they allow them to be presented and listened to. SG80 is met.

It cannot be concluded by default that the management system explains how information obtained from stakeholders is used or not used. SG100 is not met. The highest performance level may be achieved, however, if the assessment team probes thoroughly into stakeholders' perceptions of the adequacy of information from the management system during the assessment and at the site visit, in particular.

3.1.2.c Participation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

As follows from SI 3.1.2b above, the consultation process provides opportunity for all interested and affected partis to be involved in Commission and subsidiary body meetings in WCPFC, where there is extensive stakeholder participation. The opportunity to become Member or Co-operating Non-member is open to all. The membership of relevant nations is high, and there is a high level of participation. In particular, the small island nations are well represented through the Pacific Islands Forum Fisheries Agency. SG80 is met.

Hence, organizations with an interest in the fishery are not only given the opportunity to be involved. They are actively encouraged, and their participation is facilitated. SG100 is met.

All SG60 and SG80 were met, and 1 out of 3 SG100 were met.

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References

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P.3.1.3 Longterm objectives

3.1.3.a Objectives		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 the MSC Fisheries Standard and the **precautionary approach**, are **explicit** within **management policy**.	**Clear** long-term objectives that guide decision-making, consistent with the MSC Fisheries Standard and the **precautionary approach**, are **explicit** within **and required by** management policy.

This PI also sets requirements that have to be met for both the international and national management systems, for the latter including all flag and coastal states.

The WCPF Convention states in its Preamble that effective conservation and management measures require the application of the precautionary approach and the best scientific information available (WCPFC 2000). The Commission shall apply the precautionary approach in accordance with the Convention and all relevant internationally agreed standards and recommended practices and procedures (Art. 5(c)). In applying the precautionary approach, the Commission shall determine, on the basis of the best scientific information available, stock-specific reference points and the action to be taken if they are exceeded (Art. 6(1)(a)), and take into account uncertainties relating to the size and productivity of the stocks, reference points, stock condition in relation to such reference points, levels and distributions of fishing mortality, and the impact of fishing activities on non-target and associated or dependent species, as well as existing and predicted oceanic, environmental and socio-economic conditions (Art. 6(1)(b)). Similar to global instruments such as the FAO Code of Conduct and the UN Fish Stocks Agreement, the WCPF Convention states that the Commission shall be more cautious when information is uncertain, unreliable or inadequate, and that the absence of adequate scientific information shall not be used as a reason for postponing or failing to take conservation and management measures (Art. 6(2)).

Hence, clear long-term objectives that guide decision-making, consistent with the MSC Fisheries Standard and the precautionary approach, are explicit within management policy. SG60 and SG80 are met.

It may not seem quite clear what the difference is between objectives being ‘explicit within’, which is the SG80 requirement, and ‘required by’, which is the additional SG100 requirement (while it is clear that this PI only concerns whether objectives exist, not whether they are applied in practice, which is at issue in SI 3.2.2c and various places under Principles 1 and 2). A precautionary interpretation of the latter term implies that not only must precautionary objectives exist in the management system (e.g. in an international agreement or in general fisheries legislation at national level); there must be a requirement (again, e.g., in international agreement or general national legislation) that precautionary objectives must exist also at lower levels in fisheries legislation, such as in management plans and other regulatory documents. According to this restrictive interpretation of the SG100 guidepost, SG100 is not met. (But it should be mentioned that scoring practice is variable here. Furthermore, this PI only has one SI, which makes a partial score possible. If SG100 is met at national level but not at international level, a partial score of 90 will be the result.)

All SG60 and SG80 were met, and 0 out of 1 SG100 were met.

PI 3.1.3 : 80

References

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3.2 Fishery Specific Management System

P.3.2.1 Fishery-specific objectives

3.2.1.a Objectives		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Objectives, which are broadly consistent with achieving the outcomes expressed by MSC Principles 1 and 2, are **implicit** within the fishery-specific management system.	**Short and long-term objectives**, which are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, are **explicit** within the fishery-specific management system.	**Well-defined and measurable short- and long-term objectives**, which are demonstrably consistent with achieving the outcomes expressed by MSC Principles 1 and 2, are **explicit** within the fishery-specific management system.

Fishery-specific objectives are normally found at RFMO level, although they may be supplemented by (and usually implemented in) national legislation in flag and/or coastal states. It is sufficient that fishery-specific objectives are found explicitly at one of these levels as long as they are intended to apply (or in practice apply) to the other level as well.

Each conservation measure has an objective. A number of actions were adopted in 15-01 which refine the overall goals of management (WCPFC Rev-BET/YFT/SKJ, 2016): the Fishing Mortality Rate (F) for skipjack will be maintained at a level no greater than F_{MSY}, i.e. $F/F_{MSY} \leq 1$; the fishing mortality rate for bigeye tuna will be reduced to a level no greater than F_{MSY}, i.e. $F/F_{MSY} \leq 1$. Yellowfish fishing mortality rate should not be greater than F_{MSY}, i.e., $F/F_{MSY} \leq 1$; albacore is to maintain the albacore fleet at most recent historical levels (2002-5). There is also now a threshold reference point skipjack of 50 % of the unexploited spawning stock. CMM 2015-02 for South Pacific albacore states that fishing effort should not be increased in the Convention Area south of 20°S above current 2005 levels or recent historical (2000-2004) levels. Similarly, provisions for swordfish (CMM 2023-03) and other species are designed to maintain current exploitation with the objective for sustainable use. For CMM addressing bycatch, such as turtles (CMM 2018-04), the objective is to minimise bycatch in the relevant fisheries and return live bycatch if possible alive.

In 2023, a harvest strategy for North Pacific albacore was adopted by IATTC and WCPFC, which included a harvest control rule to set predetermined catch or fishing effort limits based on stock

assessments (IATTC Res. C-23-02). The strategy aims to balance catch allocation across IATTC and WCPFC Convention Areas as well as within individual fisheries divided by gear type. The following objectives are set in the harvest strategy: i) maintain spawning stock biomass (SSB) above the limit reference point (LRP), with a probability of at least 80 % over the next 10 years; ii) maintain depletion of total biomass around historical (2006-2015) average depletion over the next 10 years; iii) maintain F at or below the target reference point (TRP) with a probability of at least 50 % over the next 10 years; and iv) to the extent practicable, keep management changes (e.g., catch and/or effort) relatively gradual between years. Target, threshold and limit reference points are then set and a harvest control rule (HCR) established; see discussion under Principle 1 above for details. The risk of breaching the LRP based on the most current estimate of SSB shall be no greater than 20 %.

Hence, objectives which are broadly consistent with achieving the outcomes expressed by MSC Principles 1 and 2, are at least implicit within the fishery-specific management system. SG60 is met.

These objectives are explicit in the harvest strategies, and they are short- and long-term. Long-term objectives are to maintain the state of the target stock at sustainable levels and minimise the fishery's impact on the wider ecosystem. Short-term objectives include keeping annual catches within the set catch limits. SG80 is met.

The P1-related objectives are well-defined and measurable while P2-related objectives to a lesser extent are, which may warrant a partial score at SG100.

All SG60 and SG80 were met, and 0 out of 1 SG100 were met.

PI 3.2.1 : 80

References

IATTC Res. C-23-02. Amendments to Harvest Strategy for North Pacific Albacore in the Eastern Pacific Ocean, Inter-American Tropical Tuna Commission (https://www.iattc.org/GetAttachment/03fdcf3e-2e64-4010-bf92-8b3886e460d0/C-23-02_North-Pacific-albacore.pdf).

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P.3.2.2 Decision-making processes

3.2.2.a Decision-making processes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There are **some** decision-making processes in place that result in **measures** and **strategies** to achieve the fishery-specific objectives.	There are **established** decision-making processes that result in **measures** and **strategies** to achieve the fishery-specific objectives.	

This PI applies mainly to decision-making processes at RFMO level. Decision-making processes at national level may be relevant, but this level does not necessarily have to be assessed if decisions on management measures are mainly made at the international level.

In WCPFC, decision-making rules are defined in Article 20 of the WCPF Convention. As a general rule, decision making in the Commission shall be by consensus, understood as the absence of any formal objection made at the time the decision was taken (Art. 20). If all efforts to reach a decision by consensus have been exhausted, decisions by voting on questions of procedure shall be taken by a majority of those present and voting. Decisions on questions of substance shall be taken by a three-fourths majority provided that such a majority includes a three-fourths majority of the members of the Pacific Islands Forum Fisheries Agency (an intergovernmental agency established in 1979 to facilitate regional cooperation and coordination on fisheries policies between Pacific states), and a three-fourths majority of non-members of the Forum (Art. 20). There is a set and well-established cycle of interaction between the Commission and its subsidiary bodies. These decision-making procedures have resulted in a comprehensive set of CMMs, Resolutions and strategies

Hence, there are some decision-making processes in place that result in measures and strategies to achieve the fishery-specific objectives. SG60 is met.

The decision-making processes are established in the sense that they can be immediately triggered for fisheries-related issues, have been triggered in the past and have led to decisions about sustainability in the fishery (GSA4.8). The North Pacific albacore harvest strategy is an example of that. SG80 is met.

3.2.2.b Responsiveness of decision-making processes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

Fishery-specific issues identified in relevant research are included in transparent decision-making processes in the WCPFC Commission and its subsidiary bodies. The production of the North Pacific albacore harvest strategy (see PI 3.2.1 above), which took more than a decade with continuous input from science and stakeholders and response from the RFMOs, is an example of that. Decision making is transparent, which is a requirement in the WCPF Convention (Art. 21). Initial positions of the different actors and the information used for the basis of the decision is available as technical

reports provided to the meeting or as proposals for resolutions from parties. Decision making is adaptive in that the various specialist meetings evaluate decisions, and feedback is provided to the Commission. The Commission can be shown to react appropriately. WCPFC decision-making processes allow consideration of serious and important issues through its committees and at the Commission itself. Stock assessments and studies presented at the Scientific Committee (predominantly by SPC) identify serious issues, such as overfishing at the regional level. These issues are addressed through agreed CMMs, Resolutions and strategies.

Hence, 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. SG60 and SG80 are met.

It cannot be concluded that *all* issues are necessarily responded to in a timely and adaptive manner. SG100 is not met.

3.2.2.c Use of precautionary approach		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	Decision-making processes use the **precautionary approach** and are based on best available information.	

The WCPFC Convention requires that the members of the Commission, directly and through the Commission, apply the precautionary approach, as described in Article 6 and Annex II. Specifically, the Convention requires that 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. In addition, the Convention proposes that cautious conservation and management measures are applied to exploratory fisheries until there are sufficient data to allow stock assessment as well as to fisheries adversely affected by natural phenomenon on an emergency basis. In all cases, decisions are required to be based on the best scientific information available, and the Commission makes adequate provision for this to be achieved.

Evidence that WCPFC is attempting to apply the precautionary approach is found in the limitations on expansion of various fisheries, pending further development of management plans, even where the stock is evaluated to be above the MSY level. Evidence of an ability to apply precaution is much less clear in the bigeye fishery, where bycatch issues are preventing the fishery meeting its targets.

Overall, WCPFC decision-making processes are based on the best available information and the precautionary approach, meeting SG80.

3.2.2.d Accountability and transparency of management system and decision-making process		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Some information on the fishery's performance and management action is generally available on request to stakeholders.	**Information on the fishery's performance and management action is available on request**, and explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation, and review activity.	Formal reporting to all interested stakeholders **provides comprehensive information on the fishery's performance and management actions** and describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation, and review activity.

The WCPFC website has extensive information on the working of the Commission and its subsidiary bodies, such as detailed meeting documents. As this includes at least at least general summaries of information on allocation, compliance and fisheries management decisions (SA4.8.4.1), SG60 is met.

In the detailed protocols and minutes from meetings in the Commission and its subsidiary bodies, explanations are provided for action or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity. This is ensured, for instance, by the practice of providing the views of all members with an opinion on a matter instead of just the conclusions of discussions. SG80 is met.

The posting of protocols and minutes amounts to formal reporting to all interested stakeholders as much as distribution by post or email would have done. The detailed information provided in these documents, reflecting the views of all states that take part in a discussion, can be characterised as relatively comprehensive, but some information is password protected and only available to those who have been given access. SG100 is not met.

3.2.2.e Approach to disputes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 of the fishery.	The management system or UoA is attempting to comply in a timely fashion with judicial decisions arising from any legal challenges.	The management system or UoA acts proactively to avoid legal disputes or rapidly implements judicial decisions arising from legal challenges.

The management authority and the fishery are not subject to continuing court challenges. Nor are they indicating a disrespect of defiance of the law by repeatedly violating the same law or regulation necessary for the sustainability of the fishery. SG60 is met.

If taken to court by fishing companies, the management authority will comply with the judicial decision in a timely manner in accordance with the formal procedures laid down in the fisheries acts

and general legislation on the distribution of power in each flag/coastal state. This includes that if management authorities lose a court case, they will accept the verdict. SG80 is met.

The management authority works proactively to avoid legal disputes through the tight cooperation with user-groups and other stakeholders at the regulatory level, ensuring as high legitimacy as possible for regulations and other management decisions; see SI 3.1.2b above. SG100 is met.

All SG60 and SG80 were met, and 1 out of 3 SG100 were met.

PI 3.2.2 : 85

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P.3.2.3 Compliance and enforcement

3.2.3.a MCS system		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
MCS **mechanisms** exist within the UoA.	An MCS **system** exists within the UoA.	A **comprehensive** MCS system is well-established within the UoA.

Monitoring, control and enforcement (MCS) is undertaken by states since it is states that have the jurisdiction to do so and that possess and operate patrol vessels. Coastal states have exclusive MCS jurisdiction in waters under national jurisdiction (internal waters, territorial sea and EEZ), while only flag states have traditionally had the jurisdiction to enforce regulations for vessels flying their flag on the high seas. The UN Fish Stocks Agreements changed this by mandating RFMOs to allow for any convention party to conduct inspections of any fishing vessels on the high seas within the respective convention area (UNFSA 1995, Art. 21(1)).

In WCPFC, compliance and enforcement are addressed in Part VI of the WCPF Convention. Each member is obliged to enforce CMMs issued by the Commission (Art. 25(1)) and to investigate any alleged infringements by vessels flying its flag, at the request of other members, with the outcome of the investigation being reported to the WCPFC Secretariat within two months (Art. 25(2)). Any member may take action to deter fishing vessels that have engaged in illegal activities from fishing in the Convention Area until appropriate action has been taken by the flag state (Art. 25(11)). For the purposes of ensuring compliance with CMMs, the Commission shall establish procedures for boarding and inspection of fishing vessels on the high seas in the Convention Area (Art. 26(1)). Each member of the Commission shall ensure that fishing vessels flying its flag accept boarding by duly authorised inspectors in accordance with such procedures (Art. 26(3)). Bording and inspection procedures were adopted in 2006 (CMM 2006-08). Each party to the Convention may carry out

boarding and inspection on the high seas in the Convention Area (Art. 5). Accordingly, each party is obliged to ensure that fishing vessels flying its flag accept on board authorised inspectors from any member state (Art. 7). As a general principle, priority for boarding and inspection may be given to vessels that are not on the WCPFC Record of Fishing Vessels and are flagged to members of the Commission, fishing vessels reasonably believed to have engaged in illegal fishing, fishing vessels whose flag state does not dispatch patrol vessels to the area to monitor its own fishing vessels, fishing vessels without observers on board, large-scale tuna fishing vessels, and fishing vessels with a known history of non-compliance with CMMs or national regulations (Art. 10). Inspection reports are to be submitted to the flag state and the Commission within three days after completion of the inspection (Art. 30), except if a serious infringement is disclosed, in which case notification shall be sent immediately (Art. 32). Serious infringements include fishing without a license, failure to maintain sufficient catch records, fishing in a closed area, fishing during a closed season, intentional taking or retention of species that are not allowed to be caught, significant violation of quotas or catch limits, among other things (Art. 37). As per 2025, 13 states, among them Canada, had authorised inspection vessels listed on the WCPFC High Seas Boarding and Inspection Register. A Vessel Monitoring System (VMS) was introduced in 2008, which applies to all fishing vessels that fish for highly migratory fish stocks on the high seas within the Convention Area (CMM 2014-02). A Compliance Monitoring Scheme (CMS) was adopted in 2023; however, its stated purpose is to assess compliance with CMMs by members of the Commission, not by individual fishing vessels (which is at issue in the present SI) (CMM 2023-04, Art. 1).

The Forum Fisheries Agency (FFA) is the main service organisation providing MCS support for the WCPO. This includes a regional MCS strategy endorsed by Forum Fisheries Committee Ministers, which includes regional operations and cooperation, a regionally agreed benchmark level of observer coverage (100 % for the purse seine fishery since 2010), at sea and at port inspections. Regional coordination of MCS is undertaken by FFA Surveillance Centre (RFSC). The RFSC operates from its control centre in Honiara. The RFSC monitors fishing vessel activity using a combination of VMS, Automatic Identification System (AIS) and Synthetic Aperture Radar (SAR). Access to VMS and AIS data is available to all member countries through FFA's Google Track system. MSC is also supported by the QUAD Operational Working Group. This group comprises the aerial and naval arms of Australia, France, New Zealand and the U.S. to provide aerial and surface assets to assist regional surveillance. FFA also has the responsibility for facilitating the coordination of the surveillance assets provided by the QUAD nations in support of national and multilateral fishing surveillance and response activities.

Hence, MCS mechanisms exist within the UoA. SG60 is met.

The mechanisms qualify as a system. SG80 is met.

The additional requirement at SG100 is that the system is comprehensive. With the detailed provisions and arrangements for reporting, VMS, at-sea and port inspections, it can be argued that the system is indeed comprehensive. However, not all flag states have in the past exercised effective jurisdiction and control of their vessels, warranting the precautionary conclusion that SG100 is not met.

3.2.3.b Sanctions		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Sanctions to address non-compliance exist within the UoA.	Sanctions to deal with non-compliance exist, that are appropriate to the UoA, and are applied.	Comprehensive sanctions to address non-compliance exist, that are appropriate to the UoA, and are consistently applied.

As follows from the above, sanctions for infringements committed in the WCPFC Convention Area must be imposed by the flag state. The only exception is if UoA catch is landed in other states than the flag state, in which case the port state may impose sanctions if domestic legislation is violated.

Sanctions are applied to vessels that violate fishing regulations. WCPFC notifies flag states of non-compliant vessels, which the flag states then order to withdraw from the Convention Area.

The blacklisting of non-member vessels (IUU lists) has become a widespread practice among all RFMOs, including WCPFC.

Sanctions to address non-compliance exist at national level in flag states that take part in the fishery. SG60 is met. Information on sanctions in the fishery are usually provided by the inspecting states, although other sources of information may also exist.

There is also evidence from flag states that sanctions are applied and that they are appropriate to the UoA. SG80 is met.

There is not sufficient evidence to conclude that comprehensive sanctions exist and are consistently applied. SG100 is not met. However, this highest performance score may be achieved for some fisheries, depending on data available on sanctions in the respective flag and port states.

3.2.3.c Compliance (information)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Information is adequate to **broadly understand** compliance in the UoA.	Information is adequate to **estimate** compliance in the UoA with a **high degree of accuracy**.	Information is adequate to **estimate** compliance in the UoA with a **very high degree of accuracy**.

The Evidence Requirement Framework (ERF) must be applied in assessing this SI (MSC Fisheries Standard Toolbox v1.2). To evaluate the trueness of the information available on compliance in the fishery, the level of bias and how it is mitigated must be determined using the Objectivity, Relevance, Completeness and Consistency (ORCC) test. The fishery is then scored against three Trueness Guideposts (TG 1, 2 and 3), which correspond to the scoring guideposts at SG60, SG80 and SG100.

For the fishery to meet SG60, information must be adequate to broadly understand compliance in the fishery, which under TG1 is defined as follows: 'There is potential for bias to exist in the information, but its effect on trueness can be anticipated and is not considered to be consequential.' It is not a priori possible to know what kind of information on compliance will be available in specific MSC assessments. Typically, that will be, at best, numbers of inspections and infringements provided by the relevant enforcement agency – often, it is just a more general statement by the authorities on the general level of compliance in the fishery. Using the ORCC test, such information will score relatively high on the objectivity indicator since the information comes from independent verification by enforcement agencies. The information will normally also be relevant, but very rarely does such information have a high level of detail, e.g. on numbers of infringements with different

types of regulations by different types of vessels. Information will then seldom score highly on the completeness indicator, and with limited sources it is difficult to assess the information against the consistency indicator. In sum, it might be concluded that the effects of bias on trueness can be anticipated and are not considered to be consequential; hence, TG1 is met. This corresponds to an SG60 score, and it can be concluded that information is adequate to broadly understand compliance in the UoA. SG60 is met. It must be emphasised that this presupposes the existence of at least some independent information on compliance in the fishery, notably from national enforcement agencies. If there is no independently verified information on compliance, but, for instance, only information provided by the clients themselves, the fishery will score lowly also on the objectivity indicator, and TG1/SG60 might not be met.

To achieve an SG80 score, information must be adequate to estimate compliance in the UoA with a high degree of accuracy. To meet the TG2 requirement under the ERF, there must be limited potential for bias in the information, and where it might exist, its effect on trueness must be broadly understood, and it must not be considered consequential. Based on what kind of information is typically available on compliance in the RFMO-managed tuna fisheries, this requirement is not likely to be met. If information may be relatively objective and relevant, it will seldom be complete, which requires detailed inspection and infringement statistics preferably corroborated by other sources of information such as independent reviews or research, which also makes it difficult to assess consistency (between sources of information). It cannot be concluded that information is adequate to estimate compliance in the UoA with a high degree of accuracy. SG80 is not met.

3.2.3.d Compliance (outcome)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Systematic non-compliance of regulations specific to governing sustainable fishing practices on the water is not evident within the UoA.	Majority of regulations, including all regulations specific to governing sustainable fishing practices on the water, are **likely** to be complied with.	Majority of regulations, including all regulations specific to governing sustainable fishing practices on the water, are **consistently** complied with.

As said above, information on compliance must come from national enforcement agencies. Information on compliance is not publicly available on the WCPFC website. Compliance information is password protected, and it is believed to contain information primarily on member state compliance with RFMO obligations and not on fisher compliance with regulations, which is at issue here.

WCPFC maintains an IUU vessel list. There are currently 4 vessels on the list, flagged (presently or formerly, in the case of unknown flag state) to Georgia (2), the Philippines (1) and Taiwan (1).

Reporting requirements are allegedly less complied with in WCPFC than in the other tuna RFMOs, supposedly since it is the last of them to come into existence, but this does not seem to constitute systematic non-compliance. SG60 is met. It should be noted, however, that this is no guarantee that SG60 will be met in each MSC assessment; there might well appear information on systematic non-compliance in specific assessments/UoAs.

There is not enough evidence to conclude that the majority of regulations, including all regulations specific to governing sustainable fishing practices on the water (such as catch limits and gear and area regulations), are likely to be complied with. Notably, information on compliance *rates*, which require information about both the number of inspections and the number of detected infringements, is not readily available, if at all. SG80 is not met.

All SG60 were met, and 2 out of 4 SG80 were met.

PI 3.2.3 : 70

References

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P.3.2.4 Monitoring and management performance evaluation

3.2.4.a Evaluation coverage		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There are mechanisms in place to evaluate **some** parts of the fishery-specific management system.	There are mechanisms in place to evaluate **key** parts of the fishery-specific management system.	There are mechanisms in place to evaluate **all** parts of the fishery-specific management system.

WCPFC has extensive mechanisms in place to evaluate the management system as demonstrated by the various committees and working groups that meet regularly and report their findings to the Commission. As well as the annual Commission meetings, regular meetings include those for the Scientific Committee, the Technical and Compliance Committee and the Northern Committee. Reports from meetings of the various groups are available on the WCPFC website. Key CMMs are reviewed annually.

In 2007, the five tuna RFMOs agreed to undertake periodic reviews of performance against their objectives. The performance review of WCPFC was published in 2012 (WCPFC-PR 2012). The review was prepared by a panel consisting of four independent experts and three internal members (from the European Union, Nauru, and the Philippines). The review has chapters on the WCPF Convention and other legal international instruments; rules of procedure, decision making and dispute settlement; conservation and management; compliance and enforcement; international cooperation; and financial and administrative issues. Among the many recommendations made within these areas is to introduce a CMM on port state measures, to prioritise biodiversity protection more highly, to rectify identified data submission shortcomings; and expeditiously resolve

outstanding issues related to the effective implementation of the regional observer program, such as data flow, access to observer data, draft observer report submission, and reduction in cost.

Hence, there are mechanisms in place to evaluate some parts of the fishery-specific management system. SG60 is met.

The issues subject to review are comprehensive and include key parts of the fishery-specific management system. SG80 is met.

It is a principal and methodological challenge to claim that *all* parts of a management system are subject to review. The WCPFC performance review was comprehensive, but it was conducted 13 years ago (in 2025), and even though there is scattered review of different elements of the management system also beyond the performance, the lack of updated holistic reviews the last decade makes it difficult to conclude that there are mechanisms in place to review all parts of the fishery-specific management system. Admittedly, it is SI 3.2.4b that deals with the frequency of reviews, while SI 3.2.4a concerns review coverage. However, the low frequency with which major reviews take place in this case also affects the review coverage at different times – at this time, coverage is not sufficient to conclude that all parts of the system are subject to review. SG100 is not met.

3.2.4.b Internal and/or external review		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The fishery-specific management system is subject to **occasional internal** review.	The fishery-specific management system is subject to **regular internal** and **occasional external review**.	The fishery-specific management system is subject to **regular** internal and external review.

While SI 3.2.4a concerns review coverage, SI 3.2.4b sets requirements for the frequency with which reviews, internal and external, take place. Reviews can be conducted at either national or international level as long as the essential parts of the fishery-specific management system. For all practical purposes, the UoA fishery is managed at WCPFC level, with national regulations implementing RFMO decisions and sometimes supplementing them. Since national legislation must at least give effect to decisions made at RFMO level, reviews at RFMO level will qualify as reviews of the fishery-specific management system without necessitating separate reviews at national level.

As seen in SI 3.2.4a above, there are extensive internal reviews within the WCPFC Commission and its subsidiary bodies. SG60 is met, as well as the first criterion under SG80 (regular internal reviews).

Since at least occasional external reviews also take place, in particular the WCPFC performance review in 2012, SG80 is also met.

There is no specific requirement to how frequently reviews must be undertaken to qualify as regular, but the fact that only one performance review of WCPFC has been conducted so far, and that this is now (2025) 13 years ago, makes it difficult to conclude that the system is subject to regular external review. SG100 is not met.

All SG60 and SG80 were met, and 0 out of 2 SG100 were met.

PI 3.2.4 : 80

References

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Inter-American Tropical Tuna Commission

3.1 Governance and Policy

P.3.1.1 Legal and/or customary framework

3.1.1.a Compatibility of laws or standards with effective management		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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** that deliver management outcomes consistent with MSC Principles 1 and 2.

The focus of this PI is on whether there is an appropriate and effective legal and/or customary framework that is capable of delivering sustainability in the UoA(s) in accordance with P1 and P2.

At the national level an assessment will need to be made for the UoA(s) to provide evidence that there are national laws agreements and policies governing the actions of the authorities and actors involved in managing the UoA and that that effective regional and/or international cooperation creates a comprehensive cooperation under the obligations of UNCLOS Articles 63(2), 64, 118, 119, and UNFSA Article 8.

The management systems of all flag states of the UoA and all coastal states (i.e. states in whose national waters the fishery takes place) must be assessed under this scoring issue (SI), as well as any international management regime that is in place for the fishery. Since scoring elements are not used for Principle 3, the guideposts at each management level, including the national management system of *all* flag and coastal states, must be met for the fishery to achieve the score in question.

The Inter-American Tropical Tuna Commission (IATTC) is the RFMO responsible for the conservation and management of tuna and tuna-like species, associated species and their ecosystems, throughout the Eastern Pacific Ocean, from Canada in the north to Chile in the south. The Convention Area includes both the high seas and waters under national jurisdiction in this geographical area. IATTC was established in 1949 with a mandate to gather and interpret scientific data (IATTC 1949). To adapt the organisation to the requirements of the evolving law of the sea, negotiations started in 1998 on a revised founding treaty. The Antigua Convention, adopted in 2003 and in force in 2010, transferred IATTC into a fully-fledged RFMO, with a mandate to engage in fisheries management also beyond scientific research (IATTC 2003). The Antigua Convention contains provisions on objectives (Part II), the functions and decision-making procedures of the Commission (Part III), the rights and obligations of the members of the Commission (Part IV), confidentiality (Part V), cooperation (Part VI), settlement of disputes (Part VII), and non-members (Part VIII). In brief, the Commission shall promote, carry out and coordinate scientific research (Art. VII(a)); adopt measures that are based on the best scientific evidence available to ensure the long-term conservation and sustainable use of the fish stocks covered by the Convention (Art. VII(c)); adopt conservation and management

measures (CMMs) and recommendations for species belonging to the same ecosystem and that are affected by fishing for, or dependent on or associated with, the fish stocks covered by the Convention (Art. VII(f)), including determination and allocation of total allowable catch (TAC) (Art. VII(l)); and adopt measures to avoid, reduce and minimise waste, discards, catch by lost or discarded gear, catch of non-target species (both fish and non-fish species) and impacts on associated or dependent species, in particular endangered species (Art. VII(g)). The ordinary meetings of the Commission shall take place at least once a year (Art. VIII(1)), and decisions on certain issues require consensus, including questions about amendments to the Convention, accession of new members, the Commission's budget, and determination and allocation of TACs (Art. IX(1-3)). Article X of the Convention establishes the Committee for the Review of Implementation of Measures Adopted by the Commission, whose functions are detailed in Annex 3: to review and monitor compliance with CMMs and analyse information submitted by member states and vessels (Annex 3(a-b)). Article XI establishes the Scientific Advisory Committee, whose functions are determined by Annex 4: to review scientific information and provide the Commission with scientific advice. The Convention is open to the parties to the original IATTC Convention from 1949; states that are not party to the 1949 Convention but have a coastline bordering the Convention Area; states whose vessels fish for fish stocks covered by the Convention, following consultation with the Parties; and states that are otherwise invited by the parties to join. As per 2025, there are 20 signatories to the Convention. Non-American members include China, the EU, France, Japan, Kiribati, Korea, and Vanuatu. Chinese Taipei (Taiwan), as a 'fishing entity' as per the UN Fish Stocks Agreement (UNFSA 1995), has signed a commitment to abide by the terms of the Convention and comply with its Resolutions (which are largely used instead of CMMs in IATTC). There are five Cooperating Non-Members (CNMs), including Indonesia and Liberia from outside the Americas.

The Agreement on the International Dolphin Conservation Program (AIDCP), which entered into force in 1999, established the International Dolphin Conservation Program (IDCP), the successor to the 1992 Agreement on the Conservation of Dolphins (the 'La Jolla Agreement'). The IATTC provides the Secretariat for the programme, which covers the Eastern Pacific Ocean (IDCP 1999). The overarching objective of IDCP is to progressively reduce incidental dolphin mortalities in the tuna purse-seine fishery in the Agreement Area to levels approaching zero, through the setting of annual limits (Art. 1).

Since the fishery is 'subject to international cooperation', it is scored according to the provisions in SA4.3.1(b) (SG60), SA4.3.2(b) (SG80) and SA4.3.3(b) (SG100) of the MSC Fisheries Standard v3.1. Presuming that there is an effective national legal system in place in the relevant flag and coastal states, the first requirement across SG60-SG100 is met. The international cooperation delivers at least the collection and sharing of scientific data, the scientific assessment of stock status and the development of scientific advice (SA4.3.1.1), and we can presume that the flag state has at least cooperative non-member status in IATTC (SA4.3.1.2). Hence, there is a framework for cooperation with other parties to deliver management outcomes consistent with MSC Principles 1 and 2. SG60 is met.

Cooperation is organised and effective in the sense that it delivers agreement and management actions consistent with management advice, as well as monitoring and control (SA4.3.2(b)(iii)). The flag state is presumed to be member of IATTC (SA4.3.2(b)(iv)). SG80 is met.

There are two additional requirements at SG100: that cooperation must be based on binding agreement (SA4.3.3(b)(ii)) and that management outcomes consistent with MSC Principles 1 and 2 are delivered (SA4.3.3(b)(iii)). The Antigua Convention is a binding agreement (treaty) acceded to by (presumably) all relevant states engaged in the fisheries, so the first criterion at SG100 is met. Whether the system delivers management outcomes consistent with MSC Principles 1 and 2 must be assessed in the concrete situation and cannot be concluded for all times and contexts. SG100 is not met. That is, it is not met by default, but it might be achievable.

3.1.1.b Resolution of disputes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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, which is appropriate to the context of the fishery and has been **tested and proven to be effective**.

Disputes may arise at national level in the flag and coastal states of the UoA fishery or at international level in IATTC, and dispute resolution mechanisms must exist at both levels. In the following, it is presumed that SG100 is met for the national level.

The Antigua Convention's Article XXV states that disputes can be settled through any peaceful means that the parties may agree upon, in accordance with international law, which would usually be consultations in the first instance followed by third-party mediation, conciliation or arbitration, if required (IATTC 2003). In cases when two or more members of the Commission agree that they have a dispute of a technical nature, and they are unable to resolve the dispute among themselves, they may refer the dispute, by mutual consent, to a non-binding ad hoc expert panel constituted within the framework of the Commission in accordance with the procedures adopted for this purpose by the Commission. The panel shall confer with the members concerned and shall endeavour to resolve the dispute expeditiously without recourse to binding procedures for the settlement of disputes.

At the wider international level, disputes can be solved through the means available to the parties according to international law in general, and the law of the sea in particular. According to Article 27 of the UN Fish Stocks Agreement (UNFSA 1995), states have the obligation to settle their disputes by negotiation, inquiry, mediation, conciliation, arbitration, judicial settlement, resort to regional agencies or arrangements, or other peaceful means of their own choice. The Agreement, in Article 30, makes the provisions relating to the settlement of disputes in Part XV of the UN Law of the Sea Convention (UNCLOS 1982) applicable, *mutatis mutandis*, to any dispute between parties to the Agreement concerning the interpretation or application of a subregional, regional or global fisheries agreement relating to straddling fish stocks or highly migratory fish stocks to which they are parties, including any dispute concerning the conservation and management of such stocks, whether or not they are also parties to the Convention. According to the Convention's Articles 286-287, disputes must be submitted to one of the following compulsory dispute settlement mechanisms if peaceful means fail: i) the International Tribunal for the Law of the Sea (ITLOS) in Hamburg; ii) the International Court of Justice (ICJ) in The Hague; iii) an Arbitral Tribunal in accordance with the Convention's Annex VII, which is the default option if no other method is chosen; or iv) a Special Arbitral Tribunal in accordance with the Convention's Annex VIII for particular technical disputes, e.g. relating to fisheries and the marine environment. Arbitration can be handled under the Permanent Court of Arbitration (PCA) in The Hague, which provides dispute resolution services to the international community.

Hence, the management system incorporates or is subject by law to mechanisms for the resolution of legal disputes arising within the system. SG60 is met.

The mechanisms are transparent in that any cases before national courts or international courts or tribunals would be publicly announced, and consultations within IATTC are transparent in that protocols and meeting minutes refer deliberations between parties and not only conclusions of discussions. The mechanisms are considered to be effective in dealing with most issues and

appropriate to the context of the UoA. This takes account of the fact that disputes are generally resolved within the established governance structure, primarily through consultation. SG80 is met.

The global dispute resolution mechanisms have generally been little used in fisheries disputes and more in jurisdictional disputes, but ITLOS Cases 3 and 4 concerned a fisheries dispute between Australia and New Zealand on the one hand and Japan on the other on the management of the Southern Bluefin tuna stock (ITLOS 1999). The fact that the ITLOS cases concerned another stock/RFMO than the UoA does not make it irrelevant here, as Component 3.1 relates to the overarching management framework of the fishery (here referring to dispute resolution mechanisms available at global level in the law of the sea), unlike Component 3.2, which is about the fishery-specific management system. However, these cases were limited in scope to the use of provisional measures according to UNCLOS Article 290. Following ITLOS's provisional measures, the parties proceeded with the formation of a UNCLOS Annex VII arbitral tribunal to settle the substantive legal issues. The tribunal, however, decided it did not have jurisdiction in the case as the dispute had arisen within the Commission for the Conservation of Southern Bluefin Tuna (CCSBT) and should have been settled using the dispute resolution mechanisms in that RFMO (Southern Bluefin Tuna Case 2000). In general, ITLOS has primarily been used to settle disputes on provisional measures and the prompt release of vessels following arrest in accordance with UNCLOS Article 292. It has not been tested and proven to be effective in solving disputes that more typically arise in international fisheries management, such as disputes between states on fishing rights, regulatory measures or enforcement and compliance. SG100 is not met. This does not necessarily preclude the opposite conclusion based on a more thorough assessment of the extent to which disputes have actually been solved through peaceful means such as consultation within IATTC. It is just that sufficient (systematically collected) evidence does not appear to be available at the present time.

3.1.1.c Respect for rights		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

Mechanisms to commit to the rights of people dependent on fishing for food and livelihood may exist at both national level in the flag states and at international level in IATTC. The management system of coastal states (which are not flag states in the fishery) is less relevant here. It is normally the combined effects of measures at national and international level that have to be assessed, although it is possible that measures at just one of these levels are sufficient to reach a specific guidepost.

The Antigua Convention states in its Article XXIII that IATTC shall seek to adopt measures relating to technical assistance, technology transfer, training and other forms of cooperation, to assist developing countries that are members of the Commission to fulfil their obligations under the Convention, as well as to enhance their ability to develop fisheries under their respective national jurisdictions and to participate in high seas fisheries on a sustainable basis (IATTC 2003). All Pacific Island states are given fishing rights in IATTC, based on historical catch. Seto et al. (2020) label this 'quasi allocation', as catch is not directly allocated, but capacity is frozen at historic levels.

Smaller vessels and more artisanal gears are excluded from many measures. Pole-and-line, troll, and sport fishing vessels, and purse-seine vessels less than 182 metric tonnes carrying capacity and longline vessels less than 24m length are exempt from various measures designed to limit fishing activity on bigeye and yellowfin tuna stocks. Furthermore, purse-seine vessels with between 182 and 272 metric tons carrying capacity are provided for higher fishing effort provided that they carry an observer for AIDCP. These exemptions are clearly designed to protect some artisanal fleets. Since Component 3.1 deals with the overarching management system (as opposed to the fishery-specific management system, which is scored under Component 3.2), such measures applicable to only some species or some gears may also be relevant in the assessment of IATTC management of other species or gears.

Hence, 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. SG60 is met.

As these rights are not only 'considered' (which reflects the SG60 requirement of these rights being respected; cf. SA4.3.6) but are 'observed' in the sense that there are formal arrangements in place within the legal system to secure them (cf. SA4.3.7), SG80 is met.

Formal allocation criteria have not been developed in IATTC. The rights of small island states and territories depending on fish for food or livelihood may be observed in practice, but the lack of binding allocation criteria implies that they have no legal guarantee that their catch shares are maintained from one year to another. SG100 is not met.

All SG60 and SG80 were met, and 0 out of 3 SG100 were met.

PI 3.1.1 : 80

References

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P.3.1.2 Consultation, roles and responsibilities

3.1.2.a Roles and responsibilities		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

The requirements under this SI must be met for both the international level and for the national management system in the relevant flag states. In the following, it is assumed that SG100 is met for the national level, so the final score will depend on how the international level is assessed. The management system of coastal states (which are not flag states in the fishery) is less relevant for this PI.

At international level, management authority clearly rests with the IATTC Commission and its subsidiary bodies within the IATTC Convention Area. In some fisheries, management responsibility may be divided between IATTC in the eastern parts of the Pacific and WCPFC in the western parts. Where there is spatial overlap, there is a clear separation of functions, roles and responsibilities, founded in a Memorandum of Understanding between the two RFMOs (IATTC-WCPFC 2006). Within IATTC, the functions, roles and responsibilities of the subsidiary bodies are clearly defined in the Antigua Convention for IATTC (IATTC 2003).

IATTC is closely linked to IDCP, which is a separate agreement specifically created to apply the 'dolphin safe' label. There is clear differentiation between responsibilities, but co-operation increases the efficiency of both programmes. For example, IDCP includes the objective to ensure the long-term sustainability of the tuna stocks in the Agreement Area, as well as that of the marine resources related to this fishery, taking into consideration the interrelationship among species in the ecosystem, with special emphasis on, inter alia, avoiding, reducing and minimizing bycatch and discards of juvenile tunas and non-target species (IDCP 1999, Art. IV(1-2)).

Hence, organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are generally understood. SG60 is met.

Since they are described in international treaty and national legislation in flag states, the functions, roles and responsibilities are explicitly defined and well understood for key areas or responsibility and interaction. SG80 is met.

It is a principal and methodological challenge to conclude that functions, roles and responsibilities are well understood for *all* areas of responsibility and interaction, and a precautionary scoring warrants the conclusion that SG100 is not met. The highest performance level may be achieved, however, if the assessment team probes thoroughly into stakeholders' understanding of functions, roles and responsibilities during the assessment and at the site visit, in particular.

3.1.2.b Consultation processes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 accep**t 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**.

The Antigua Convention has a special annex (Annex 2) on principles and criteria for the participation of observers at meetings in the Commission (IATTC 2003). It states that the IATTC Director shall invite to meetings of the Commission intergovernmental organisations whose work is relevant to the implementation of the Convention, as well as non-parties interested in conservation and sustainable use of the fish stocks covered by the Convention that so request (Art. 1). Non-governmental organisations (NGOs) shall be eligible to participate as observers in meetings of the Commission and its subsidiary bodies except meetings held in executive session or meetings of Heads of Delegation. As per 2025, 60 organisations have been granted formal status as observers to IATTC, the majority of which are environmental NGOs, but also the fishing industry and scientific institutions are represented.

Hence, the management system includes consultation processes that obtain relevant information from the main affected parties, including local knowledge, to inform the management system. SG60 is met.

Consultations take place on a regular basis, and the management system demonstrates consideration of the information obtained, as reflected in protocols and minutes from meetings. SG80 is met.

It cannot be concluded by default that the management system explains how information obtained from stakeholders is used or not used. SG100 is not met. The highest performance level may be achieved, however, if the assessment team probes thoroughly into stakeholders' perceptions of the adequacy of information from the management system during the assessment and at the site visit, in particular.

3.1.2.c Participation		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	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.

As follows from SI 3.1.2b above, the consultation process provides opportunity for all interested and affected partis to be involved in Commission and subsidiary body meetings in IATTC, where there is extensive stakeholder participation. SG80 is met.

A special fund administered by the IATTC has been created for strengthening the institutional capacity of developing countries for the sustainable development of fisheries for highly migratory species (Resolution C-14-03). The fund is used to develop technical and scientific capacity in developing countries so that they can comply with their obligations under the Antigua Convention. This includes capacity to collect, maintain and analyse relevant data, and to participate in all IATTC meetings. The 2016 performance review specifically recommends continuing to utilise the Capacity Building Fund for education and resource development.

Hence, organisations with an interest in the fishery are not only given the opportunity to be involved. They are actively encouraged, and their participation is facilitated. SG100 is met.

All SG60 and SG80 were met, and 1 out of 3 SG100 were met.

PI 3.1.2 : 85

References

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P.3.1.3 Longterm objectives

3.1.3.a Objectives		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 the MSC Fisheries Standard and the **precautionary approach**, are **explicit** within **management policy**.	**Clear** long-term objectives that guide decision-making, consistent with the MSC Fisheries Standard and the **precautionary approach**, are **explicit** within **and required by** management policy.

This PI also sets requirements that have to be met for both the international and national management systems, for the latter including all flag and coastal states. In the following, it is assumed that SG100 is met for the national level.

The Antigua Convention has a dedicated article on the application of the precautionary approach (IATTC 2003, Art. IV). It states that members of the Commission, directly and through the Commission, shall apply the precautionary approach, as described in the relevant provisions of the Food and Agriculture Organization of the United Nations (FAO) Code of Conduct for Responsible Fisheries (FAO 1995) and/or the UN Fish Stocks Agreement (UNFSA 1995), for the conservation, management and sustainable use of fish stocks covered by the Convention (Art. IV(1)). The members of the Commission shall be more cautious when information is uncertain, unreliable or inadequate, and the absence of adequate scientific information shall not be used as a reason for postponing or failing to take conservation and management measures (Art. IV(2)).

It may not seem quite clear what the difference is between objectives being 'explicit within', which is the SG80 requirement, and 'required by', which is the additional SG100 requirement (while it is clear that this PI only concerns whether objectives exist, not whether they are applied in practice, which is at issue in SI 3.2.2c and various places under Principles 1 and 2). A precautionary interpretation of the latter term implies that not only must precautionary objectives exist in the management system (e.g. in an international agreement or in general fisheries legislation at national level); there must be a requirement (again, e.g., in international agreement or general national legislation) that precautionary objectives must exist also at lower levels in fisheries legislation, such as in management plans and other regulatory documents. According to this restrictive interpretation of the SG100 guidepost, SG100 is not met. (But it should be mentioned that scoring practice is variable here. Furthermore, this PI only has one SI, which makes a partial score possible. If SG100 is met at national level but not at international level, a partial score of 90 will be the result.)

All SG60 and SG80 were met, and 0 out of 1 SG100 were met.

PI 3.1.3 : 80

References

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3.2 Fishery Specific Management System

P.3.2.1 Fishery-specific objectives

3.2.1.a Objectives		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Objectives, which are broadly consistent with achieving the outcomes expressed by MSC Principles 1 and 2, are **implicit** within the fishery-specific management system.	**Short and long-term objectives**, which are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, are **explicit** within the fishery-specific management system.	**Well-defined and measurable short- and long-term objectives**, which are demonstrably consistent with achieving the outcomes expressed by MSC Principles 1 and 2, are **explicit** within the fishery-specific management system.

Fishery-specific objectives are normally found at RFMO level, although they may be supplemented by (and usually implemented in) national legislation in flag and/or coastal states. It is sufficient that fishery-specific objectives are found explicitly at one of these levels as long as they are intended to apply (or in practice apply) to the other level as well.

In 2023, a harvest strategy for North Pacific albacore was adopted by IATTC and WCPFC, which included a harvest control rule to set predetermined catch or fishing effort limits based on stock assessments (IATTC Res. C-23-02). The strategy aims to balance catch allocation across IATTC and WCPFC Convention Areas as well as within individual fisheries divided by gear type. The following objectives are set in the harvest strategy: i) maintain spawning stock biomass (SSB) above the limit reference point (LRP), with a probability of at least 80 % over the next 10 years; ii) maintain depletion of total biomass around historical (2006-2015) average depletion over the next 10 years; iii) maintain fishing intensity (F) at or below the target reference point (TRP) with a probability of at least 50 % over the next 10 years; and iv) to the extent practicable, keep management changes (e.g., catch and/or effort) relatively gradual between years. Target, threshold and limit reference points are then set and a harvest control rule (HCR) established; see discussion under Principle 1 above for details. The risk of breaching the LRP based on the most current estimate of SSB shall be no greater than 20 %. For yellowfin, bigeye and skipjack tuna, IATTC has s used as an operational HCR limiting F at levels that do not exceed the level corresponding to the MSY, with interim LRPs and TRPs for yellowfin and tuna (IATTC Res. C-23-06).

The objectives of the IDCP are to i) progressively reduce incidental dolphin mortalities in the tuna purse-seine fishery in the Agreement Area to levels approaching zero, through the setting of annual limits; ii) with the goal of eliminating dolphin mortality in this fishery, to seek ecologically sound means of capturing large yellowfin tunas not in association with dolphins; and iii) to ensure the long-term sustainability of the tuna stocks in the Agreement Area, as well as that of the marine resources related to this fishery, taking into consideration the interrelationship among species in the ecosystem, with special emphasis on, inter alia, avoiding, reducing and minimising bycatch and discards of juvenile tunas and non-target species (IDCP 1999, Art. 1).

For other P2 species, there are resolutions on sharks (Res. C-24-05), silky sharks (Res. C-23-08) and sea turtles (C-19-04), among others. The general objectives are to keep or rebuild stocks and, for sharks, to ensure that fins are kept attached.

Hence, objectives which are broadly consistent with achieving the outcomes expressed by MSC Principles 1 and 2, are at least implicit within the fishery-specific management system. SG60 is met.

These objectives are explicit in the harvest strategies, and they are short- and long-term. Long-term objectives are to maintain the state of the target stock at sustainable levels and minimise the fishery's impact on the wider ecosystem. Short-term objectives include keeping annual catches within the set catch limits. SG80 is met.

The P1-related objectives are well-defined and measurable, such as for albacore, keeping SSB above LRP with a probability of at least 80 % and maintaining F at or below TRP with a probability of at least 50 %. However, P2-related objectives are less well-defined and to a lesser extent measurable, which may warrant only a partial score at SG100.

All SG60 and SG80 were met, and 0 out of 1 SG100 were met.

PI 3.2.1 : 80

References

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P.3.2.2 Decision-making processes

3.2.2.a Decision-making processes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There are **some** decision-making processes in place that result in **measures** and **strategies** to achieve the fishery-specific objectives.	There are **established** decision-making processes that result in **measures** and **strategies** to achieve the fishery-specific objectives.	

This PI applies mainly to decision-making processes at RFMO level. Decision-making processes at national level may be relevant, but this level does not necessarily have to be assessed if decisions on management measures are mainly made at the international level.

In IATTC, decision-making procedures are outlined in Article IX of the Antigua Convention (IATTC 2003). The ordinary meetings of the Commission shall take place at least once a year (Art. VIII(1)), and decisions on certain issues require consensus, including questions about amendments to the Convention, accession of new members, the Commission's budget, and determination and allocation of TACs (Art. IX(1-3)).

Members can vote, but cooperating non-members are not entitled to take part in voting. While there is no evidence that a lack of consensus has prevented necessary conservation measures being adopted, it is possible that the requirement for consensus slows up decisions while protracted negotiations may take place. One performance review finding was that the consensus model of governance has limitations that impact the Commission's decision-making ability. Therefore, the Commission should consider establishing protocols for situations that would benefit from voting in a non-consensus model and take measures to improve meeting efficiency and decision-making (Moss Adams 2016).

Hence, there are some decision-making processes in place that result in measures and strategies to achieve the fishery-specific objectives. SG60 is met.

The decision-making processes are established in the sense that they can be immediately triggered for fisheries-related issues, have been triggered in the past and have led to decisions about sustainability in the fishery (GSA4.8). The North Pacific albacore harvest strategy is an example of that. SG80 is met.

3.2.2.b Responsiveness of decision-making processes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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.

Fishery-specific issues identified in relevant research are included in transparent decision-making processes in the IATTC Commission and its subsidiary bodies. The production of the North Pacific albacore harvest strategy (IATTC Res. C-2302), which took more than a decade with continuous input from science and stakeholders and response from the RFMOs, is an example of that. Another example is the establishment of port state measures following recommendations from the independent performance review (Moss Adams 2016); see SIs 3.2.3a and 3.2.4a below.

Each national section has one vote (Rules of Procedure Rule III). All decisions, resolutions, recommendations, and other official actions of the Commission are taken only by a unanimous vote of all of the High Contracting Parties to the Convention (Rule IV). This allows some activities of the Commission to be blocked. In practice, this probably results in delays while a compromise is reached. Consultation includes trying to ensure participants are aware of their responsibilities. Training workshops are provided to captains authorised to fish in IATTC waters. The decision-making is transparent. IATTC ostensibly resolves most disputes by consensus at its annual meetings. While the outcome of such decisions is transparent as it is published as a resolution from the annual meetings, and initial positions and the information used for the basis of the decision is available (as technical reports provided to the meeting or as proposals for resolutions from some Parties), exactly how a decision is reached is not necessarily obvious. However, this degree of transparency is adequate to show any mismatch between the information being provided and the decision being made. The system makes sure that all Commission members are fully informed of the issues under consideration and are able to participate in informed decision-making.

Hence, 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. SG60 and SG80 are met.

It cannot be concluded that *all* issues are responded to in a timely and adaptive manner. The failure to set specific allocation criteria is an example of that. SG100 is not met.

3.2.2.c Use of precautionary approach		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
	Decision-making processes use the **precautionary approach** and are based on best available information.	

As follows from PI 3.1.3 above, the precautionary approach is enshrined in the Antigua Convention (IATTC 2003). Article IV states that members of the Commission, directly and through the Commission, shall apply the precautionary approach, as described in the relevant provisions of the

Food and Agriculture Organization of the United Nations (FAO) Code of Conduct for Responsible Fisheries (FAO 1995) and/or the UN Fish Stocks Agreement (UNFSA 1995), for the conservation, management and sustainable use of fish stocks covered by the Convention (Art. IV(1)). The members of the Commission shall be more cautious when information is uncertain, unreliable or inadequate, and the absence of adequate scientific information shall not be used as a reason for postponing or failing to take conservation and management measures (Art. IV(2)).

Article VII of the Convention requires that the Commission adopts measures that are based on the best scientific evidence available to ensure the long-term conservation and sustainable use of the fish stocks covered by this Convention (Art. VII(c)). The Commission is also tasked to determine whether, according to the best scientific information available, a specific fish stock covered by this Convention is fully fished or overfished and, on this basis, whether an increase in fishing capacity and/or the level of fishing effort would threaten the conservation of that stock (Art. VII(d)).

This requirement to use the best scientific information available is clearly implemented. There is evidence from the large number of meetings that have been conducted and reports written for the Commission which provide analyses and advice based on all the available information.

Overall, IATTC decision-making processes are based on the best available information and the precautionary approach. SG80 is met.

3.2.2.d Accountability and transparency of management system and decision-making process		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Some information on the fishery's performance and management action is generally available on request to stakeholders.	**Information on the fishery's performance and management action is available on request**, and explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation, and review activity.	Formal reporting to all interested stakeholders **provides comprehensive information on the fishery's performance and management actions** and describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation, and review activity.

The IATTC website has extensive information on the working of the Commission and its subsidiary bodies, such as detailed meeting documents. As this includes at least at least general summaries of information on allocation, compliance and fisheries management decisions (SA4.8.4.1), SG60 is met.

In the detailed protocols and minutes from meetings in the Commission and its subsidiary bodies, explanations are provided for action or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity. This is ensured, for instance, by the practice of providing the views of all members with an opinion on a matter instead of just the conclusions of discussions. SG80 is met.

The posting of protocols and minutes amounts to formal reporting to all interested stakeholders as much as distribution by post or email would have done. The detailed information provided in these documents, reflecting the views of all states that take part in a discussion, can be characterised as relatively comprehensive, but some information, such as on compliance, is password protected and only available to those who have been given access. SG100 is not met.

3.2.2.e Approach to disputes		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
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 of the fishery.	The management system or UoA is attempting to comply in a timely fashion with judicial decisions arising from any legal challenges.	The management system or UoA acts proactively to avoid legal disputes or rapidly implements judicial decisions arising from legal challenges.

The management authority and the fishery are not subject to continuing court challenges. Nor are they indicating a disrespect of defiance of the law by repeatedly violating the same law or regulation necessary for the sustainability of the fishery. SG60 is met.

If taken to court by fishing companies, the management authority will comply with the judicial decision in a timely manner in accordance with the formal procedures laid down in the fisheries acts and general legislation on the distribution of power in each flag/coastal state. This includes that if management authorities lose a court case, they will accept the verdict. SG80 is met.

The management authority works proactively to avoid legal disputes through the tight cooperation with user-groups and other stakeholders at the regulatory level, ensuring as high legitimacy as possible for regulations and other management decisions; see SI 3.1.2b above. SG100 is met.

All SG60 and SG80 were met, and 1 out of 3 SG100 were met.

PI 3.2.2 : 85

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P.3.2.3 Compliance and enforcement

3.2.3.a MCS system		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
MCS **mechanisms** exist within the UoA.	An MCS **system** exists within the UoA.	A **comprehensive** MCS system is well-established within the UoA.

Monitoring, control and enforcement (MCS) is undertaken by states since it is states that have the jurisdiction to do so and that possess and operate patrol vessels. Coastal states have exclusive MCS jurisdiction in waters under national jurisdiction (internal waters, territorial sea and EEZ), while only flag states have traditionally had the jurisdiction to enforce regulations for vessels flying their flag on the high seas. The UN Fish Stocks Agreements changed this by mandating RFMOs to allow for any convention party to conduct inspections of any fishing vessels on the high seas within the respective convention area (UNFSA 1995, Art. 21(1)).

The Antigua Convention requires that parties to the IATTC take the measures necessary to ensure implementation of and compliance with CMMs, including the adoption of the necessary laws and regulations (IATTC 2003, Art. XVIII(1)) and compliance by individual vessels flying their flag (Art. XVIII(5)). Parties are also obliged to inform the flag state if they have reason to believe that vessels flying other states' flag have engaged in illegal activity (Art. XVIII(6)). If the flag state does not follow up accordingly, the other parties to the Convention may 'take action, following the recommendations adopted by the Commission and in accordance with this Convention and international law, to deter such vessels from such activities until such time as appropriate action is taken by the flag State to ensure that such vessels do not continue those activities' (Art. XVIII(10)). A Permanent Working Group on Compliance was established in 2000 (IATT 2000). In 2019, IATTC adopted Resolution C-21-07 on port state measures which entered into force in 2022 (IATTC Res. C-21-07). It applies to landings and transshipments of fish from the Convention Area in ports of other states than the flag state (Arts. 6, 8). Each party that wishes to grant access to its ports to foreign fishing vessels must designate ports to which such vessels may request entry (Art. 13). Vessels must notify the port state at least 48 hours before the estimated time of arrival in port and inform, among other things, of the quantities of IATTC-managed species on board and to be landed or transshipped (Art. 17). Each year, the port state is obliged to physically inspect at least 5 % of landed and transshipped IATTC-managed fish from foreign vessels (Art. 22). Inspection reports must be shared with the flag state and the IATTC Secretariat within 30 days (Art. 28). If an infringement is detected that falls within the legal jurisdiction of the port state, the port state may take action in accordance with its domestic law and inform the flag state and the IATTC Secretariat about this (Art. 31). Infringements that do not fall within the jurisdiction of the port state, and infringements falling

under the jurisdiction of the port state for which the port state has not taken action, shall be referred to the flag state and, as appropriate, the coastal state if the infringement has taken place in waters under national jurisdiction. The flag (and if relevant, coastal) state is required to investigate the alleged infringement and to inform the IATTC Secretariat within 6 months of any enforcement action taken (Art. 32). The flag state shall consider and act on reports of infringements from inspectors of another IATTC port state on a similar basis as the reports from their own inspectors, in accordance with their domestic laws (Art. 37). A Vessel Monitoring System was introduced in 2006, whereby fishing vessels 24 meters or more in length operating in the Eastern Pacific Ocean and harvesting tuna or tuna-like species shall be equipped with a satellite-based vessel monitoring system (VMS) (IATTC Res. C-23-11). In 2024, IATTC adopted interim minimum standards for electronic monitoring on purse seine and longline fishing vessels operating on the high seas of the Convention Area (IATTC Res. C-24-09).

Most information on compliance comes from port monitoring and observer programs. The IATTC has the longest-established regional scientific and enforcement programme and is unusual in that it has a regional observer programme fully coordinated by the Secretariat, with its own observers. In 2011, IATTC required that each member and cooperating non-member ensure that, from 1 January 2013, at least 5 % of the fishing effort made by its longline fishing vessels greater than 20 metres length overall carry a scientific observer. In the same way as for ICCAT and IOTC, observers monitor the transshipments at sea by large-scale tuna longline vessels and check that transshipped tuna quantities are consistent with the catch reported in the IATTC transshipment declaration. All carrier vessels receiving such transshipments at sea of tuna-like species from large-scale tuna longline vessels in the IATTC Convention Area must have an IATTC observer on board. Administered by the IATTC for the AIDCP, all purse-seine vessels greater than 363 metric tons carrying capacity must carry an observer, which has been mandatory since 2000. The main purpose of this observer programme is to monitor the incidental catch of dolphins in the purse-seine fishery. The data collected form the basis for determining whether a Dolphin Mortality Limit (DML) has been exceeded, and is also used for scientific and research purposes, as well as for monitoring compliance with IATTC management and conservation measures. At least 50 % of the observers on each Party's vessels must be IATTC observers; the remainder may be from the Party's national observer programme. Not all vessels are monitored, smaller vessels being exempt from the observer programme.

IATTC maintains an IUU vessel list. There are currently 13 vessels on the list, one flagged to Georgia and the rest with unknown flag state (with some registered with owners in Costa Rica, Panama and Taiwan).

Hence, MCS mechanisms exist within the UoA. SG60 is met.

The mechanisms qualify as a system. SG80 is met.

The additional requirement at SG100 is that the system is comprehensive. With the detailed provisions and arrangements for reporting, VMS, at-sea and port inspections, it can be argued that the system is indeed comprehensive. However, not all flag states have in the past exercised effective jurisdiction and control of their vessels, warranting the precautionary conclusion that SG100 is not met.

3.2.3.b Sanctions		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Sanctions to address non-compliance exist within the UoA.	Sanctions to deal with non-compliance exist, that are appropriate to the UoA, and are applied.	Comprehensive sanctions to address non-compliance exist, that are appropriate to the UoA, and are consistently applied.

As follows from the above, sanctions for infringements committed in the IATTC Convention Area must be imposed by the flag state. The only exception is if UoA catch is landed in other states than the flag state, in which case the port state may impose sanctions if domestic legislation is violated.

Sanctions are applied to vessels that violate fishing regulations. IATTC notifies flag states of non-compliant vessels, which the flag states then order to withdraw from the Convention Area. There is an indirect trade sanction through removal of the 'dolphin safe' certification. These sanctions appear to be applied consistently.

The blacklisting of non-member vessels (IUU lists) has become a widespread practice among all RFMOs including IATTC.

Sanctions to address non-compliance exist at national level in flag states that take part in the fishery. SG60 is met. Information on sanctions in the fishery are usually provided by the inspecting states, although other sources of information may also exist.

There is also evidence from flag states that sanctions are applied and that they are appropriate to the UoA. SG80 is met.

There is not sufficient evidence to conclude that comprehensive sanctions exist and are consistently applied. SG100 is not met. However, this highest performance score may be achieved for some fisheries, depending on data available on sanctions in the respective flag and port states.

3.2.3.c Compliance (information)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Information is adequate to **broadly understand** compliance in the UoA.	Information is adequate to **estimate** compliance in the UoA with a **high degree of accuracy**.	Information is adequate to **estimate** compliance in the UoA with a **very high degree of accuracy**.

The Evidence Requirement Framework (ERF) must be applied in assessing this SI (MSC Fisheries Standard Toolbox v1.2). To evaluate the trueness of the information available on compliance in the fishery, the level of bias and how it is mitigated must be determined using the Objectivity, Relevance, Completeness and Consistency (ORCC) test. The fishery is then scored against three Trueness Guideposts (TG 1, 2 and 3), which correspond to the scoring guideposts at SG60, SG80 and SG100.

For the fishery to meet SG60, information must be adequate to broadly understand compliance in the fishery, which under TG1 is defined as follows: 'There is potential for bias to exist in the information, but its effect on trueness can be anticipated and is not considered to be consequential.' It is not a priori possible to know what kind of information on compliance will be available in specific MSC assessments. Typically, that will be, at best, numbers of inspections and infringements provided by the relevant enforcement agency – often, it is just a more general statement by the authorities on the general level of compliance in the fishery. Using the ORCC test, such information will score relatively highly on the objectivity indicator since the information comes from independent

verification by enforcement agencies. The information will normally also be relevant, but very rarely does such information have a high level of detail, e.g. on numbers of infringements with different types of regulations by different types of vessels. Information will then seldom score highly on the completeness indicator, and with limited sources it is difficult to assess the information against the consistency indicator. In sum, it might be concluded that the effects of bias on trueness can be anticipated and are not considered to be consequential; hence, TG1 is met. This corresponds to an SG60 score, and it can be concluded that information is adequate to broadly understand compliance in the UoA. SG60 is met. It must be emphasised that this presupposes the existence of at least some independent information on compliance in the fishery, notably from national enforcement agencies. If there is no independently verified information on compliance, but, for instance, only information provided by the clients themselves, the fishery will score lowly also on the objectivity indicator, and TG1/SG60 might not be met.

To achieve an SG80 score, information must be adequate to estimate compliance in the UoA with a high degree of accuracy. To meet the TG2 requirement under the ERF, there must be limited potential for bias in the information, and where it might exist, its effect on trueness must be broadly understood, and it must not be considered consequential. Based on what kind of information is typically available on compliance in the RFMO-managed tuna fisheries, this requirement is not likely to be met. If information may be relatively objective and relevant, it will seldom be complete, which requires detailed inspection and infringement statistics preferably corroborated by other sources of information such as independent reviews or research, which also makes it difficult to assess consistency (between sources of information). It cannot be concluded that information is adequate to estimate compliance in the UoA with a high degree of accuracy. SG80 is not met.

Information on inspections and infringements in the fishery are usually provided by the inspecting states, although other sources of information may also exist.

3.2.3.d Compliance (outcome)		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
Systematic non-compliance of regulations specific to governing sustainable fishing practices on the water is not evident within the UoA.	Majority of regulations, including all regulations specific to governing sustainable fishing practices on the water, are **likely** to be complied with.	Majority of regulations, including all regulations specific to governing sustainable fishing practices on the water, are **consistently** complied with.

As said above, information on compliance must come from national enforcement agencies. Information on compliance is not publicly available on the IATTC website. The compliance section is password protected, and it is believed to contain information primarily on member state compliance with IATTC obligations and not on fisher compliance with regulations, which is at issue here.

Based on general knowledge about compliance in the IATTC Convention Area, non-compliance has been an issue, such as in treatment of ETP species and tuna discards, but this does not seem to constitute systematic non-compliance. SG60 is met. It should be noted, however, that this is no guarantee that SG60 will be met in each MSC assessment; there might well appear information on systematic non-compliance in specific assessments/UoAs.

There is not enough evidence to conclude that the majority of regulations, including all regulations specific to governing sustainable fishing practices on the water (such as catch limits and gear and area regulations), are likely to be complied with. Notably, information on compliance *rates*, which require information about both the number of inspections and the number of detected infringements, is not readily available, if at all. SG80 is not met.

All SG60 were met, and 2 out of 4 SG80 were met.

PI 3.2.3 : 70

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P.3.2.4 Monitoring and management performance evaluation

3.2.4.a Evaluation coverage		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
There are mechanisms in place to evaluate **some** parts of the fishery-specific management system.	There are mechanisms in place to evaluate **key** parts of the fishery-specific management system.	There are mechanisms in place to evaluate **all** parts of the fishery-specific management system.

IATTC has extensive mechanisms in place to evaluate the management system as demonstrated by the various committees and working groups of IATTC that meet regularly and report their findings to the Commission. As well as the annual Commission meetings, regular meetings include those for the Scientific Advisory Committee, the Committee for the Review of Implementation Measures and the International Review Panel. Reports from meetings of the various groups are available on the IATTC website. In addition, there is an annual International Review Panel of IDCP, where, among other

issues, the observer programmes are evaluated. IATTC has a permanent working group that reviews and monitors members' compliance with CMMs.

In 2007, the five tuna RFMOs agreed to undertake periodic reviews of performance against their objectives. IATTC was the last among the five to produce a performance review, in 2016, conducted by the accounting and consulting firm Moss Adams (Moss Adams 2016). 26 findings were identified under the headings Governance, Management, and Science. As an example from Governance, it was concluded that the consensus model has limitations that impact the Commission's decision-making ability, and it was recommended to establish protocols for situations that would benefit from voting in a non-consensus model, among other things. Under Management, it was observed that the Secretariat does not have a strategic plan or multi-year work plan to guide annual activities, and that the scientific staff and Director are responsible for responding to a large volume of research and data requests. Under Science, one observation was that member country scientists do not feel adequately connected to or involved in IATTC scientific activities. The review has a main focus on administrative and procedural issues, but a more substantive finding was that there is limited observer data from longline, small purse seine, and artisanal fishing vessels.

Hence, there are mechanisms in place to evaluate some parts of the fishery-specific management system. SG60 is met.

The issues subject to review are comprehensive and include key parts of the fishery-specific management system. SG80 is met.

It is a principal and methodological challenge to claim that *all* parts of a management system are subject to review. The IATTC performance review was comprehensive, but it was conducted 9 years ago (in 2025), and even though there is scattered review of different elements of the management system also beyond the performance, the lack of updated holistic reviews the last decade makes it difficult to conclude that there are mechanisms in place to review all parts of the fishery-specific management system. Admittedly, it is SI 3.2.4b that deals with the frequency of reviews, while SI 3.2.4a concerns review coverage. However, the low frequency with which major reviews take place in this case also affects the review coverage at different times – at this time, coverage is not sufficient to conclude that all parts of the system are subject to review. SG100 is not met.

3.2.4.b Internal and/or external review		
60 Guidepost	**80 Guidepost**	**100 Guidepost**
The fishery-specific management system is subject to **occasional internal** review.	The fishery-specific management system is subject to **regular internal** and **occasional external review**.	The fishery-specific management system is subject to **regular** internal and external review.

While SI 3.2.4a concerns review coverage, SI 3.2.4b sets requirements for the frequency with which reviews, internal and external, take place. Reviews can be conducted at either national or international level as long as the essential parts of the fishery-specific management system. For all practical purposes, the UoA fishery is managed at IATTC level, with national regulations implementing RFMO decisions and sometimes supplementing them. Since national legislation must at least give effect to decisions made at RFMO level, reviews at RFMO level will qualify as reviews of the fishery-specific management system without necessitating separate reviews at national level.

As seen in SI 3.2.4a above, there are extensive internal reviews within the IATTC Commission and its subsidiary bodies. SG60 is met, as well as the first criterion under SG80 (regular internal reviews).

Since at least occasional external reviews also take place, in particular the IATTC performance reviews in 2016, SG80 is also met.

There is no specific requirement to how frequently reviews must be undertaken to qualify as regular, but the fact that only one performance review of IATTC has been conducted so far, and that this is

now (2025) 9 years ago, makes it difficult to conclude that the system is subject to regular external review. SG100 is not met.

All SG60 and SG80 were met, and 0 out of 2 SG100 were met.

PI 3.2.4 : 80

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ISSF INTERNATIONAL SEAFOOD SUSTAINABILITY FOUNDATION

www.iss-foundation.org

3706 Butler Street, Suite 307
Pittsburgh, PA 15201
United States

Phone: + 1 703 226 8101
E-mail: info@iss-foundation.org