Atlantic Ocean tuna and swordfish - longline (Ying Sheng Hsiang) fishery improvement project (FIP)

Pre-Assessment Report

FIP assessor	Key Traceability
Fishery client	Ying Shen Hsiang tuna longline fishery
Assessment type	Pre-assessment
Date	October 2024

Contents

Glossary

Acronym	Full name
ACAP	Agreement on Conservation of Albatross and Petrels
ALB	Albacore tuna
AO	Atlantic Ocean
BCC	Benguela Current Convention
BET	Bigeye tuna
BOF	Bureau of Fisheries
BSH	Blue shark
CAB	Conformity Assessment Body
CCAMLR	Convention on the Conservation of Antarctic Marine and Living Resources
CI	Confidence Interval
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMM	Conservation Management Measure
CMS	Convention on Migratory Species
CoC	Compliance Committee
COFA	China Overseas Fisheries Association (COFA)
CPC	Contracting Parties and cooperating non-members
CPUE	Catch Per Unit Effort
CR	Critical
EEZ	Exclusive Economic Zone
EJF	Environmental Justice Foundation
EM	Electronic monitoring
EN	Endangered
ERA	Environmental Risk Assessment
ETP	Endangered Threatened and Protected
FAO	Food and Agriculture Organisation
FL	Fork length
FRA	Fisheries Research and Education Agency of Japan
HCR	Harvest Control Rule
ICCAT	International Commission for the Conservation of Atlantic Tunas
ISSF	International Seafood Sustainability Foundation
IUCN	International Union for Conservation of Nature
IUU	Illegal Unregulated and Unreported (fishing)

KT	Key Traceability
LOA	Length overall
LRP	Limit Reference Point
MARA	Ministry of Agriculture and Rural Affairs
MCS	Monitoring Control Surveillance
MFMR	Ministry of Fisheries and Marine Resources
MOA	Ministry of Agriculture
MP	Management Procedure
MSC	Marine Stewardship Council
MSE	Management Strategy Evaluation
MSY	Maximum Sustainable Yield
NAO	North Atlantic Ocean
NGO	Non-governmental organisation
NPOA	National Plan of Action
OFMR	Offshore Fisheries Management Regulations
P1	Principle 1
P2	Principle 2
P3	Principle 3
PI	Performance Indicator
PRI	Point of Recruitment Impairment
PSA	Productivity-Susceptibility Analysis
PSM	Port State Measures
PSMA	Port State Measures Agreement
PWG	Permanent Working Group
RBF	Risk Based Framework
RFMO	Regional Fisheries Management Organisation
SADC	South African Development Community
SAO	South Atlantic Ocean
SCRS	Standing Committee of Research and Statistics
SEAFO	Southeast Atlantic Fisheries Organisation
SHOU	Shanghai Open University
SI	Scoring Issue
SKJ	Skipjack tuna
SPC	Secretariat of the Pacific Community
SS	Stock Synthesis

STACFAD	Standing Committee on Finance and Administration
SWO	Swordfish
TAC	Total Allowable Catch
TRP	Target Reference Point
UNCLOS	United National Convention on the Law of the Sea
UNFSA	United Nations Fish Stock Agreement
UoA	Unit of Assessment
UoC	Unit of Certification
VME	Vulnerable Marine Ecosystem
VU	Vulnerable
YFT	Yellowfin tuna
YSH	Ying Shen Hsiang tuna longline fishery

1 Executive summary

This report serves as a pre-assessment of the Ying Sheng Hsiang (YSH) tuna longline fishery operating in the Atlantic Ocean (AO). The scope of the pre-assessment involves vessel flagged to Namibia and People's Republic of China. The UoA vessels fish in high seas areas of the Atlantic Ocean. The main strengths of the fishery are:

1. Target species stocks are largely aligned with the requirements of either a conditional or unconditional pass at the MSC Fisheries Standard level. This is particularly true of Atlantic yellowfin and albacore tuna, and north Atlantic swordfish, which have positive stock assessments
2. There are established management frameworks for cooperation between countries that fish for tuna.
3. The efficacy of management frameworks for achieving environmental sustainability outcomes are strong

The main weaknesses of the fishery are:

1. Bigeye tuna harvest strategies are not precautionary, and yellowfin tuna also lacks official harvest control rules;
2. Fishery/UoA specific catch and observer data to effectively determine UoA catch composition and primary, secondary, and ETP species and main and minor species designations have been estimated using similar MSC fishery assessment reports and are not considered to be exhaustive of the interacted species.
3. On-board operational practices (such as training and handling) and Codes of Conduct to mitigate risks to ETP and Secondary species are absent and should be improved.

However, in total, only six Performance Indicators (PIs) are reported to be failing MSC assessment at this pre-assessment stage (<60) as a result, largely, of the lacking third-party observer data that can be used to demonstrate and verify the types of species interacted with as bycatch by the vessels in the fleet. Whilst we were able to draw comparisons with similar MSC certified fisheries to estimate the types of species thought to be interacted with, this is not indicative of the fishery-specific impacts on the populations of these stocks. Therefore, it was a decision by the assessment team to use the precautionary approach with the scoring of these particular elements. Furthermore, upon receiving observer data reports and/or more robust logbook records, the failing PIs may be able to improve in score and meet a pass at MSC level. This will be considered when developing the workplan for this fishery.

The remaining PIs all scored either a conditional or unconditional pass at this pre-assessment stage and therefore only those that have conditions associated with the pass will be considered in the fishery workplan when it is being produced.

2 Report details

2.1 Aims and constraints of the pre-assessment

A pre-assessment provides a provisional assessment of a fishery based on a limited set of information provided by the client and gathered by the assessment team; full certification will be conducted completely independently of pre-assessment results. A pre-assessment does not go into the level of detailed and rigorous scrutiny that should be undertaken as part of a full assessment. For this reason, it cannot be guaranteed that the outcome of a full assessment process can be predicted with absolute accuracy. Further issues (leading to reduced scores) or further insights and clarifications (leading to increased scores) may arise with further scrutiny - not least when a full assessment is subject to public consultation. In some cases, a low score given at pre-assessment might be because no evidence has been found to support higher scores. This does not necessarily mean that such evidence does not exist. This pre-assessment was desk-based, with a heavy reliance on information published on-line. For Principle 2, the lack of catch composition data, observer records, and other actual data from the fishery made evaluation of indicators possible at a general level only. Additionally, the scope for this particular pre-assessment was not sufficiently defined to provide preliminary scoring ranges for habitat and ecosystem performance indicators (PIs). For Principle 3 (P3), the complex nature of tuna fisheries management, involving different tiers of management. international and national levels, made assigning specific scoring ranges a challenge, especially since MSC has provided limited guidance1 on scoring across management tiers. We took what we considered a rigorous approach, evaluating P3 indicators by both coastal and flag states in addition to RFMOs, which may differ from approaches taken by other P3 assessors and conformity assessment bodies (CABs).

2.2 Version details

Table 1 – Fisheries program documents versions

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

3 Unit(s) of Assessment

3.1 Unit(s) of Assessment

Table 2 – Unit(s) of Assessment (UoA)

UoA 1	Description
Species	*Thunnus obesus*
Stock	AO BET
Geographical area	High seas (ICCAT)
Harvest method / gear	Longline
Client group	Yin Sheng Hsiang Fishery Co., Ltd
Other eligible fishers	NA
Justification for choosing the Unit of Assessment	NA
UoA 2	**Description**
Species	*Thunnus albacares*
Stock	AO YFT
Geographical area	High seas (ICCAT)
Harvest method / gear	Longline
Client group	Yin Sheng Hsiang Fishery Co., Ltd
Other eligible fishers	NA

Justification for choosing the Unit of Assessment	NA
UoA 3	Description
Species	*Thunnus alalunga*
Stock	AO N ALB
Geographical area	High seas (ICCAT)
Harvest method / gear	Longline
Client group	Yin Sheng Hsiang Fishery Co., Ltd
Other eligible fishers	NA
Justification for choosing the Unit of Assessment	NA
Species	*Thunnus alalunga*
Stock	AO S ALB
Geographical area	High seas (ICCAT)
Harvest method / gear	Longline
Client group	Yin Sheng Hsiang Fishery Co., Ltd
Other eligible fishers	NA

Justification for choosing the Unit of Assessment	NA
UoA 4	Description
Species	*Xiphias gladius*
Stock	NAO SWO
Geographical area	High seas (ICCAT)
Harvest method / gear	Longline
Client group	Yin Sheng Hsiang Fishery Co., Ltd
Other eligible fishers	NA
Justification for choosing the Unit of Assessment	NA
UoA 4	Description
Species	*Xiphias gladius*
Stock	SAO SWO
Geographical area	High seas (ICCAT)
Harvest method / gear	Longline
Client group	Yin Sheng Hsiang Fishery Co., Ltd
Other eligible fishers	NA

Justification for choosing the Unit of Assessment	NA

4 Pre-assessment results

4.1 Pre-assessment results overview

4.1.1 Overview

Table 1: Summary Principle 1 scores

Performance indicator no.	Performance Indicator	North Atlantic albacore	South Atlantic albacore	Yellowfin	Bigeye	North Atlantic swordfish	South Atlantic swordfish
1.1.1	Stock Status						
1.1.2	Stock Rebuilding	N/a	N/a	N/a		N/a	
1.2.1	Harvest Strategy						
1.2.2	Harvest Control Rules and Tools						
1.2.3	Information Monitoring						
1.2.4	Assessment of Stock Status						

Table 2: Summary Principle 2 scores

Performance indicator no.	Performance Indicator	Score
2.1.1	Primary species outcome	< 60
2.1.2	Primary species management	60-79

2.1.3	Primary species information	60-79
2.2.1	Secondary species outcome	≥ 80
2.2.2	Secondary species management	< 60
2.2.3	Secondary species information	< 60
2.3.1	ETP species outcome	< 60
2.3.2	ETP species management	< 60
2.3.3	ETP species information	< 60
2.4.1	Habitats outcome	≥ 80
2.4.2	Habitats management	≥ 80
2.4.3	Habitats information	≥ 80
2.5.1	Ecosystems outcome	≥ 80
2.5.2	Ecosystems management	60-79
2.5.3	Ecosystems information	60-79

Table 3: Summary Principle 3 scores

Performance indicator no.	Performance Indicator	Score
3.1.1	Legal and customary framework	≥80
3.1.2	Consultation, roles & responsibilities	≥80
3.1.3	Long-term objectives	≥80
3.2.1	Fishery specific objectives	≥80
3.2.2	Decision making processes	60-79

3.2.3	Compliance & enforcement	60-79
3.2.4	Monitoring & management performance evaluation	≥80

4.2 Summary of potential conditions by Principle

Table 4: Summary of Performance Indicator level scores

Principle of the Fisheries Standard	Number of PIs with draft scoring ranges <60
Principle 1 – Stock status	**0**
Principle 2 – Minimising environmental impacts	**6**
Principle 3 – Effective management	**0**

4.3 Principle 1

4.3.1 Principle 1 background

Albacore tuna (*Thunnus alalunga*)

Background

Albacore tuna are globally distributed, with six albacore stocks assessed and managed worldwide. For this assessment we focus on two stocks: Northern Atlantic Ocean (NAO), Southern Atlantic Ocean (SAO). Differences between stocks have been observed using several methods, including tagging data and genetic analyses. This species generally reaches maturity at five years of age, and total lifespan can be up to twelve years. Growth rates are moderate, with albacore growing to about 40-50 cm in their first year, followed by approximately 12 cm annual. Increases in length from years 2 to 4. The instantaneous natural mortality rate is thought to be between 0.2 and 0.5 per year.

Histological analysis indicates that albacore are annual spawners, with spawning taking place primarily from November to February in the South Pacific. Albacore in Tonga and New Caledonia reach maturity at about 80 cm fork length, corresponding to an age of 4–5 years. Estimated fecundity for NPO albacore ranges from 0.8–2.6 million eggs.

Northern Atlantic Ocean Albacore tuna status and harvest management

The Standing Committee on Research and Statistics (SCRS) of ICCAT assesses the status of the NAO albacore stock every three years and did so most recently in 2023 (ICCAT, 2023). The assessment uses time series of standardized CPUE (catch per unit effort) data from several member countries (Japan, USA, Canada, Taiwan, South Korea, Spain, and Venezuela). The stock assessment uses a biomass dynamic model () based on Automatic Differentiation Model Builder. The assessment scientists conducted sensitivity analyses and identified key data and model uncertainties (ICCAT, 2023).

The estimated benchmarks (MSY-based reference points) with their respective 95% confidence intervals from the Stock Synthesis (SS) reference case were: B_{MSY} = 93202 t, [51,136 – 135,269] F_{MSY} = 0.131 [0.095 – 0.167] (harvest rate), and MSY = 41,995 [38,860 – 45,130] t (ICCAT, 2023). The trajectories of B/B_{MSY} and F/F_{MSY}, uncertainty, and stock status were estimated using the Multivariate Log-Normal method that uses the covariance matrix estimated within the SS reference case. The uncertainty and density plots were estimated from 10,000 iterations for B/B_{MSY} and F/F_{MSY}. The model estimated median values of B_{2021}/B_{MSY} = 2.19 (95% CI: 1.21-4.01) and F_{2021}/F_{MSY} = 0.45 (95% CI: 0.29-0.71), respectively. The median of the stock status trajectory was estimated within the green quadrant of the Kobe plot since 2008 (Figure 1).

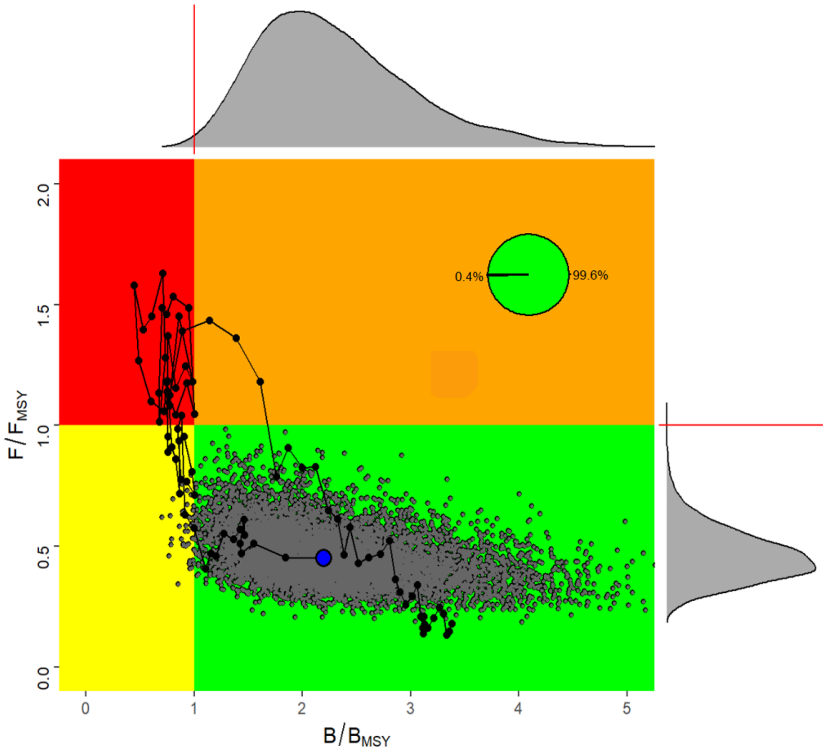

Figure 1: Kobe plot for the north Atlantic albacore tuna stock assessment conducted by ICCAT. Source: (ICCAT, 2023)

South Atlantic Ocean Albacore tuna status and harvest management

For the South Atlantic stock, the standardised CPUE indices are mainly based on longline fisheries, which catch mostly adult albacore. The median MSY value was 27,264 t (ranging between 23,734 t and 31,567 t), the median estimate of current B_{2018}/B_{MSY} was 1.58 (ranging between 1.14 and 2.05) and the median estimate of current $F2018/F_{MSY}$ was 0.40 (ranging between 0.28 and 0.59) (Figure 2), most probably, the South Atlantic albacore stock is not overfished, and that overfishing is not occurring. The wide confidence intervals reflect the large uncertainty around the estimates of stock status.

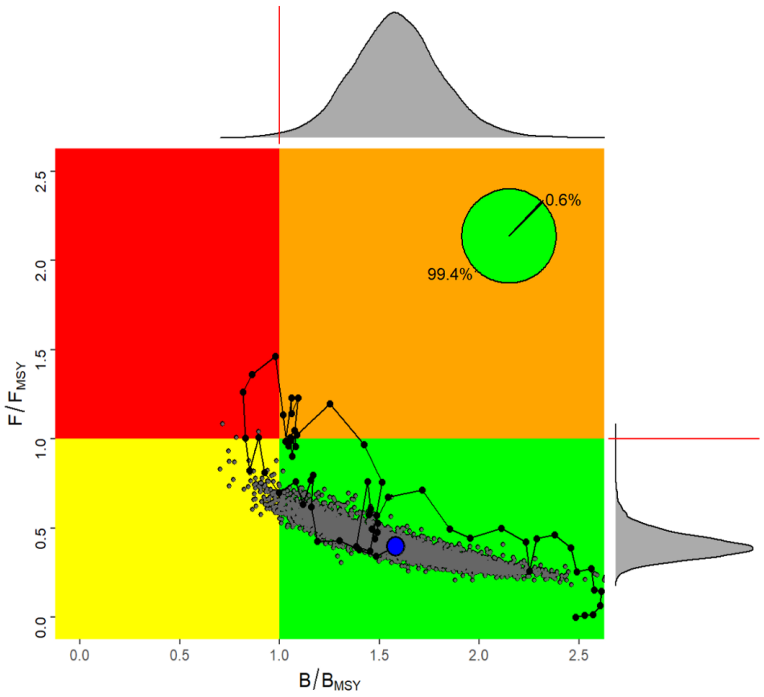

Figure 2: Kobe plot for the south Atlantic albacore tuna stock assessment conducted by ICCAT. Source: (ICCAT, 2023)

Projections at a level consistent with the MSY (27,264 t) showed that probabilities of being in the green quadrant of the Kobe plot would remain very high (90%) by 2033. In fact, due to the current high stock biomass, catches of up to 30,000 t are expected to maintain stock levels above B_{MSY} until 2033 with a probability higher than 60%. However, it is important to note that these catch levels exceed MSY, and it would require a reduction in TAC after 2033 to prevent overfishing.

Atlantic Ocean yellowfin (*Thunnus albacares*)

Background

Yellowfin tuna is a cosmopolitan species distributed mainly in the tropical and subtropical oceanic waters of the three oceans. The exploited sizes typically range from 30 cm to 170 cm fork length (FL). Spawning on the main fishing grounds, the equatorial zone of the Gulf of Guinea, occurs primarily from December to April.

Atlantic Ocean yellowfin stock status and harvest management

The most recent assessment for the northern albacore stock was conducted by SCRS in 2023 using data up to 2021. In addition to the surplus production model that is part of the adopted Management Procedure, a Stock Synthesis model was also used, which provided similar results.

Yellowfin tuna are highly migratory, schooling fish found in tropical and subtropical seas worldwide, excluding the Mediterranean Sea, at depths of 1 to 250 metres. Tagging data show significant movements between the western Atlantic and the Gulf of Guinea, likely related to the size and age of the fish.

The most recent full assessment of yellowfin tuna was carried out by SCRS in 2019. The SCRS advice is based on combined results from JABBA, MPB, and Stock Synthesis. The ratio of F_{2018}/F_{MSY} is estimated at 0.96 (range 0.56-1.50), indicating that overfishing is not occurring. The ratio of spawning biomass B_{2018}/B_{MSY} is estimated at 1.17 (range 0.75-1.62) (Figure 3). This also indicates that the stock in 2018 was not overfished. Nevertheless, recent catches have been above the TAC and MSY since 2015 and the SCRS has warned that catches above MSY levels are expected to further degrade the condition of the yellowfin stock in the future. The TAC is not allocated between CPCs, which makes it difficult to enforce.

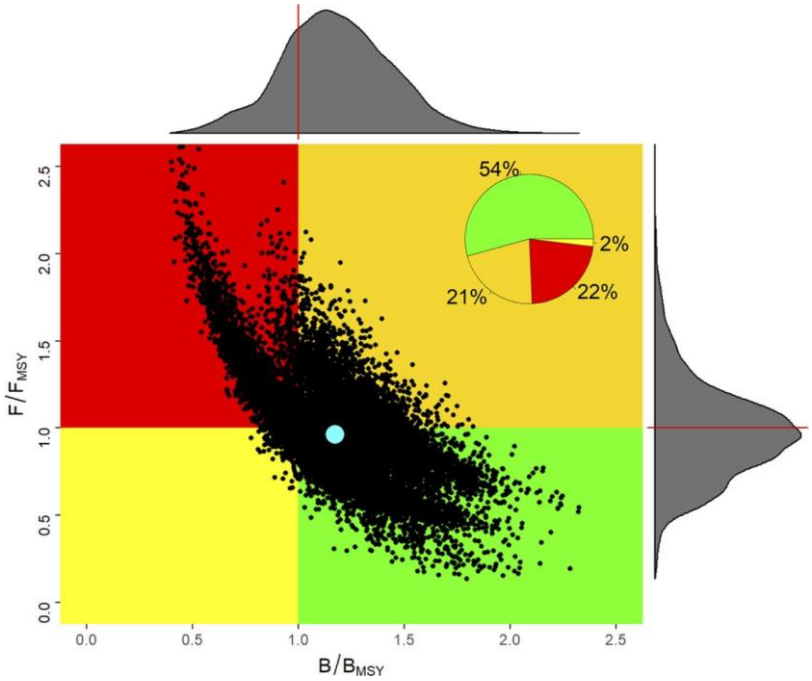

Figure 3: Kobe plot for the yellowfin tuna stock assessment conducted by ICCAT. Source: (ICCAT, 2019)

Harvest management measures include a TAC, and a seasonal closed area agreed through the feedback process (Recommendations 14-01, 15-01, 19-02). However, an external review (2016) determined that recent changes to the seasonal closure have been made without reference to scientific advice. In addition, the TAC is not implemented precisely and has been exceeded in recent years.

Currently, ICCAT is in the process of developing a MSE, and for this it requires, in turn, the development of objective reference points (TRP), limit (LRP) and threshold, as well as well-defined HCRs. The Rec [15-07] calls for the development of an MSE and includes specifications for the SCRS to advise the ICCAT Commission on the establishment of reference points for tropical tuna stocks (among others), including a 5-year timeline for the establishment of specific HCRs for each species. In 2022, albeit despite the extensive discussions regarding multi-annual conservation and management programme for tropical tunas, no progress was achieved.

Bigeye tuna (*Thunnus obesus*)

Background

Bigeye tuna are widely distributed in tropical and warm temperate waters in Atlantic, Pacific and Indian Oceans, with four stocks assessed and managed worldwide. For this assessment we focus on one stock, the Atlantic-wide stock (AO). ICCAT manages the high seas Atlantic bigeye tuna resource and assumes there is a single Atlantic-wide population based on a lack of genetic heterogeneity among different locations, time/area distribution of fish and movement patterns. Bigeye tuna can live up to 9 years and reach maturity when they are about 3.5 years old. This species grows fast and can reach about 160 cm in length. Bigeye tuna reproduce throughout the year but most often in the summer.

Atlantic Ocean bigeye status and harvest management

The last (2021) assessment conducted by SCRS (ICCAT Standing Committee on Research and Statistics) gave more optimistic results than the 2018 assessment. The 2021 stock assessment was conducted using similar assessment models to those used in 2018, updating the data until 2019, but with some significant changes in natural mortality assumptions – new evidence that the maximum age observed is higher than the maximum age used in the 2018 BET tuna stock assessment, and this may have implications for the selectivity (logistic vs. dome-shaped) and natural mortality (M) assumptions. The assessment in 2021 used MPB, JABBA and SS models.

The results of the assessment, based on the median of the entire uncertainty grid shows that in 2019 the Atlantic bigeye tuna stock was overfished (median B_{2019}/B_{MSY} = 0.94 and 80% confidence interval (CI) of 0.71 and 1.37) and was not undergoing overfishing (median F2019/FMSY=1.00 and 80% CI of 0.63 and 1.35). The average of MSY was estimated as 86,833 t with (80% CI of 72,210 t and 106,440 t) (Figure 4) from the uncertainty grid deterministic runs.

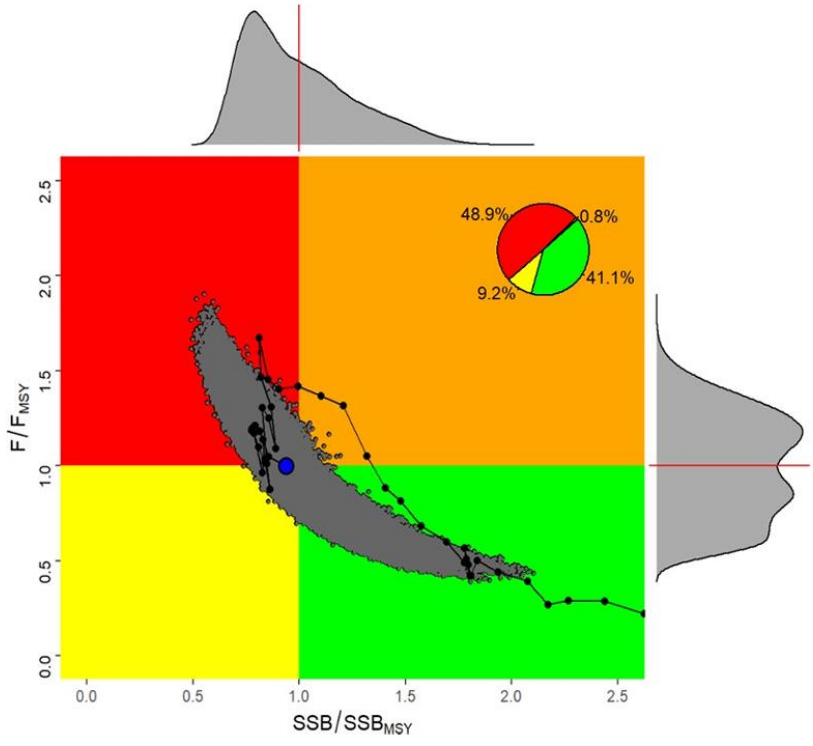

Figure 4: Kobe plot for the bigeye tuna stock assessment conducted by ICCAT. Source: (ICCAT, 2021)

The current harvest strategy is to limit catches to sustainable levels, based on a feedback process implemented by ICCAT, and to reduce bycatch of small sized bigeye tunas. According to the Kobe II Strategy Matrix (K2SM), a future constant catch of 61,500 t, which is the TAC established in Rec. 19-02, will have a high probability (97%) of maintaining the stock in the green quadrant of the Kobe plot by 2034, however, some other sources of relevant uncertainties were not included in the development of the K2SM.

Until such additional sources of uncertainty can be properly incorporated in the estimation of stock status and the K2SM, consider adopting a TAC would shift the stock status of BET towards the green zone of the Kobe plot with a high probability.

Swordfish (*Xiphias gladius*)

Background

The weight of swordfish can reach a maximum weight more than 500 kg. They are distributed widely in the Atlantic Ocean and Mediterranean Sea. In the ICCAT Convention area, the management units of swordfish for assessment purposes are a separate Mediterranean group, and North and South Atlantic groups separated at 5°N.

Swordfish mostly spawn in the western warm tropical and subtropical waters throughout the year, although seasonality has been reported in some of these areas. They are found in the colder temperate waters during summer and fall months. Tagging studies have shown that some swordfish can live up to 15 years.

North Atlantic Ocean swordfish status and harvest management

The latest stock assessment for north Atlantic swordfish estimated that the stock is at the MSY level (B_{2020}/B_{MSY} = 1.08) (0.71-1.33 confidence interval 95%). Therefore, it is highly likely that the stock is above the PRI. Likewise, likewise, the F_{2020}/F_{MSY} ratio is <1, which indicates that the stock is not considered to be overfished. Therefore, the stock is fluctuating around MSY. The stock is estimated to be in the green quadrant of the Kobe plot (Figure 5**Figure 5**).

The stock assessment indicates that time series of maximum likelihood estimates of B/B_{MSY} indicate that at the start of the time series B/B_{MSY} = 5.01, decreased to a minimum of 0.76 in the year 2000, and subsequently increased to a terminal year estimate of 1.11. However, according to JABBA, the biomass declined to approximately 0.8 B_{MSY} by 2014 and increased again from 2016 to the current estimated B/B_{MSY} = 0.91.

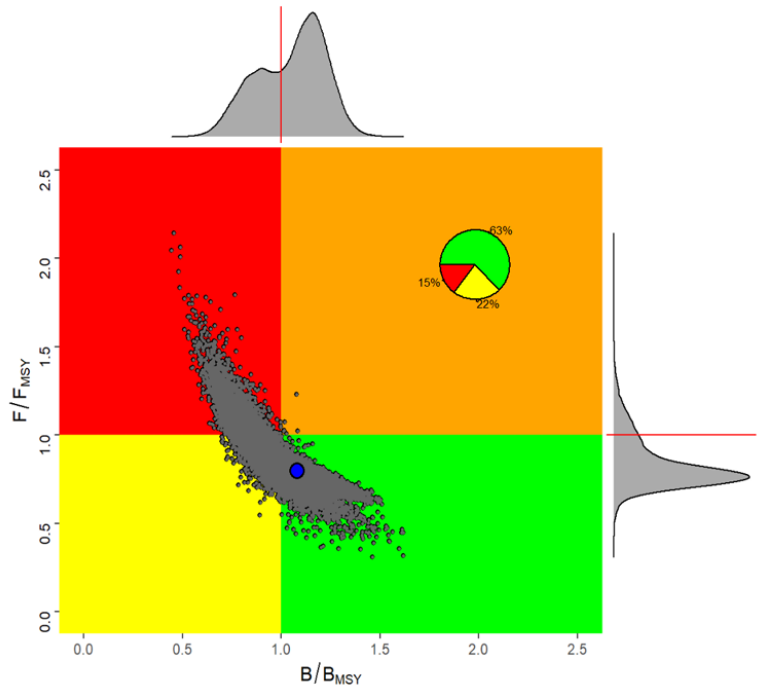

Figure 5: Kobe plot for the north Atlantic swordfish stock assessment conducted by ICCAT. Source: (ICCAT, 2022c)

Harvest management measures include a TAC and minimum size limit of catch (25 kg/ 125 cm LJFL). The combined Stock Synthesis and JABBA projections show that a 13,200 t constant catch, which is the current TAC level (Rec. 22-03), will result in a 60% probability of being in the green quadrant in 2033.

South Atlantic Ocean swordfish status and harvest management

In 2022, two stock assessment platforms were used to assess the South Atlantic swordfish stock. These were a Bayesian surplus production model (JABBA) and Stock Synthesis. While Stock Synthesis was explored in 2022, only the JABBA model was used for providing advice.

The latest stock assessment for south Atlantic swordfish estimated that the stock biomass is below MSY (B_{2020}/B_{MSY} = 0.77) (0.53-1.11 confidence interval 95%) and that F_{2020} is above F_{MSY} (1.08) (0.71-1.33 confidence interval 95%). Likewise, the stock assessment estimated that there is a 56% probability that the stock is within the red quadrant the Kobe plot (Figure 6**Figure 2**).

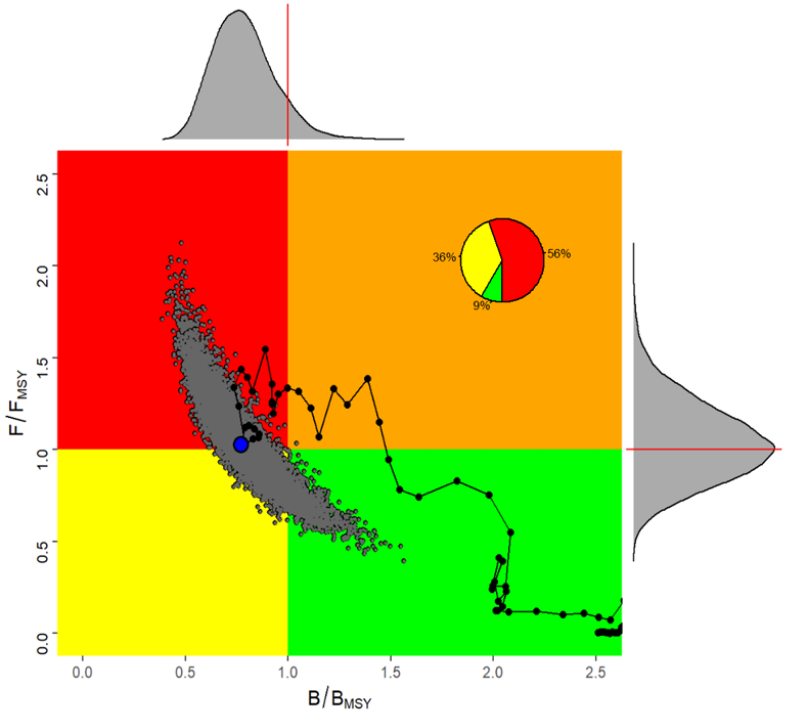

Figure 6: Kobe plot for the south Atlantic swordfish tuna stock assessment conducted by ICCAT. Source: (ICCAT, 2022c)

According to MSC-GSA2.2.3.1, the proxy to be used as PRI for this stock must be $1/2B_{MSY}$, since it is a stock where there is an analytically determined B_{MSY}, which is equivalent to 0.38 of the virgin biomass. (B_{MSY}/k= 0.38). Taking all of the above into account, there is already more than 95% of the lower limit of the B/B_{MSY} ratio being above 0.5 (B/B_{MSY}= 0.77, with a 95% confidence interval between 0.53-11).

The most recent stock assessment estimated that there is a decreasing trend in south Atlantic swordfish stock, which has recently stabilised somewhat but has remained at $B/B_{MSY} < 1$. The current median estimate is 0.77 (0.53 - 1.11). Therefore, as the stock remained under the B_{MSY} for both models.

As for harvest management, interim limit reference (LRP) of $0.4*B_{MSY}$ or any more robust LRP established through further analysis, Rec. 1703, para 12 (Rec. 21-03). The current TAC of 14,000 t (Rec. 22-04) is unlikely (3% probability) to result in the stock being in the green quadrant of the Kobe plot by 2033. The reported catch for 2022 was 8,743 t. The total allowable catch (TAC) shall be 10,000 t for South Atlantic swordfish for the years 2023, 2024, 2025 and 2026.

ATLANTIC SWORDFISH SUMMARY		
	North Atlantic	***South Atlantic***
Maximum Sustainable Yield	12,819 t (10,864 t-15,289 t)[1]	11,481 t (9,793 t-13,265 t)[2]
Current (2022) TAC	13,200 t	14,000 t
Current (2022) Yield[3]	10,349 t	8,743 t
Yield in last year used in assessment (2020)[4]	10,668 t	9,020 t
B_{MSY} (CI)	57,919 t (23,666 t-153,156 t)[5]	74,641 t (60,179 t-92,946 t)[2]
F_{MSY}	0.15 (0.08-0.23) [5]	0.15 (0.12-0.19) [2]
Relative Biomass (B_{2020}/B_{MSY})	1.08 (0.71-1.33) [5]	0.77 (0.53-1.11)[2]
Relative Fishing Mortality (F_{2020}/F_{MSY})	0.80 (0.64-1.24)[5]	1.03 (0.67-1.51)[2]
Stock Status (2020)	Overfished: NO	Overfished: YES
	Overfishing: NO	Overfishing: YES
Management Measures in Effect	Country-specific TACs Rec. 22-03: Minimum size 125/119 cm LJFL[6]	Country-specific TACs Rec. 22-04: Minimum size 125/119 cm LJFL[7]

[1] Median from base case JABBA and Stock Synthesis models; range corresponding to the lowest and highest 95% CIs from the two models.
[2] Median and 95% CIs from base case JABBA model.
[3] Provisional and subject to revision.
[4] Based on catch data available in July 2021 for the stock assessment session.
[5] Median and 95% quantiles from base case Stock Synthesis and JABBA models.
[6] Associated alternatives listed in Rec. 17-02.
[7] Associated alternatives listed in Rec. 17-03.

Figure 7: Atlantic ocean swordfish stock assessment summary table. Source: (ICCAT, 2022c)

Catch profiles

North Atlantic Ocean albacore tuna

Albacore catches in the North Atlantic in 2022 were about 31,700 tonnes, a 1% increase from 2021 catch levels. Catches are made by a variety of fishing gears including pole-and-line (37%), trawl (28%), troll (19%) and longline (16%) (ISSF, 2024) (Figure 8).

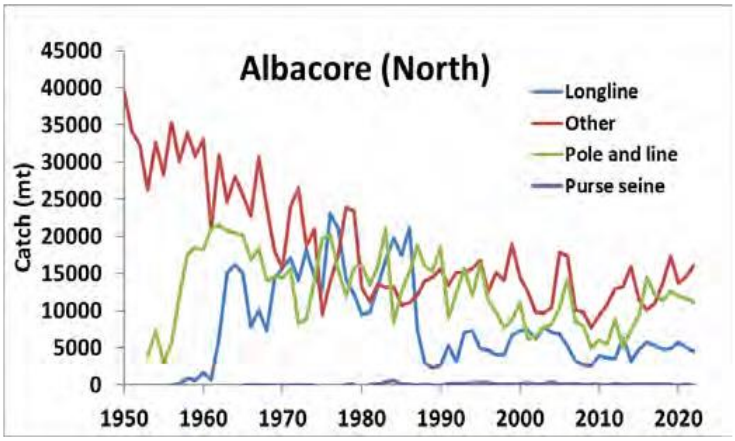

Figure 8: Catch summary of NAO ALB per fishing gear.

South Atlantic Ocean albacore tuna

Albacore catches in the South Atlantic in 2022 were about 23,500 tonnes, a 6% decrease from 2021. Catches are made primarily by longline (77%) and pole-and-line (22%) (ISSF, 2024) (Figure 9).

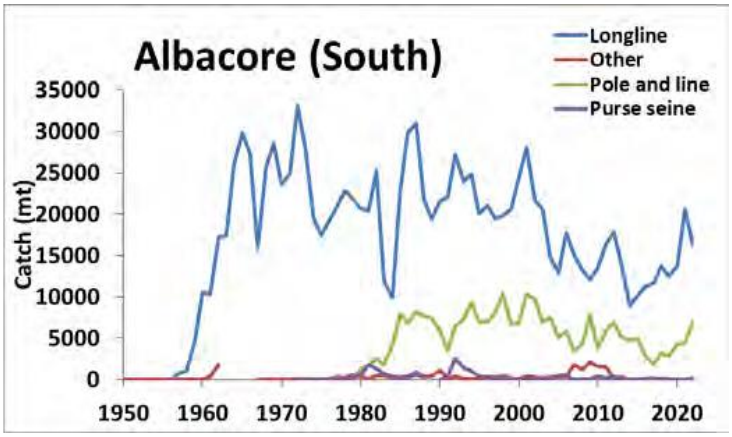

Figure 9: Catch summary of SAO ALB per fishing gear.

Atlantic Ocean yellowfin tuna

Yellowfin catches in 2022 were about 148,200 tonnes, a 24% increase from 2021. The main fishing gear is purse seining (about 69% of the catch). Purse seine catches have shown a general decrease since the early 1990s but started growing again after 2007. About 12% of the catch is made by longlining and 5% by pole-

and-line vessels. The yellowfin tuna stock in the Atlantic Ocean is not overfished and overfishing is not taking place (ISSF, 2024) (Figure 10).

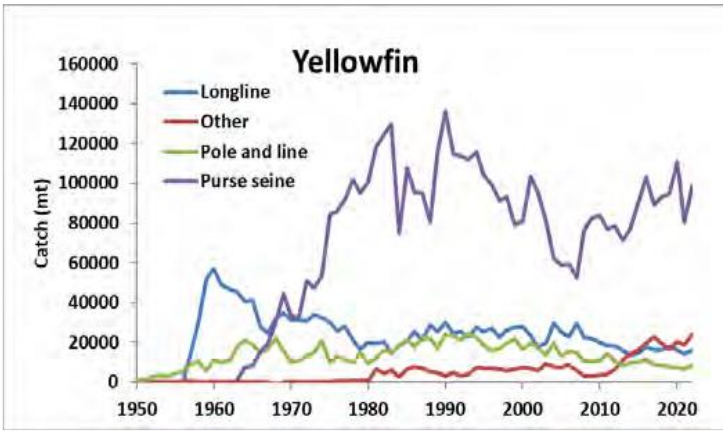

Figure 10: Catch summary of AO YFT per fishing gear.

Atlantic Ocean bigeye tuna

Atlantic bigeye catches in 2022 were about 62,500 tonnes, a 31% increase from 2021. Catches by longline, the main fishing gear (47% of the catch), declined sharply between 1999 and 2006, but they have declined more slowly during the last few years. Purse seine and pole-and-line vessels account for about 34% and 11% of the catches, respectively (). The stock is estimated to be overfished, but overfishing is not occurring (ISSF, 2024) (Figure 11).

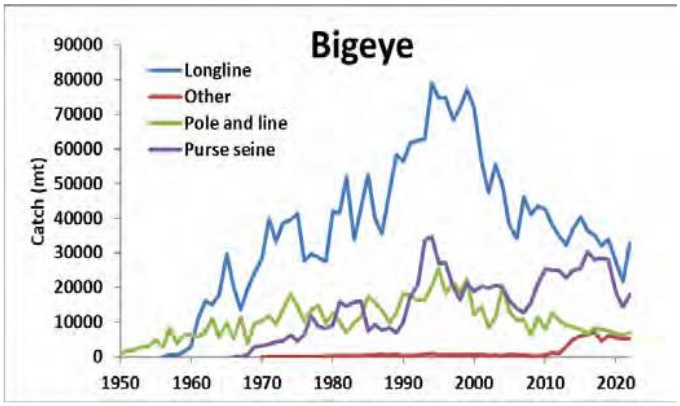

Figure 11: Catch summary of AO BET per fishing gear

North and South Atlantic Ocean swordfish

According to ICCAT SCRS 2022, the table summarises swordfish caught by longline and other gears through 2010 to 2021 in Atlantic Ocean.

Table 5: Swordfish caught by longline and other gears through 2010 to 2021 in Atlantic Ocean

Year	SWO North	SWO South
2010	11672	12596

2011	12709	11205
2012	13890	10686
2013	12078	9204
2014	10708	9970
2015	10752	10345
2016	10501	10611
2017	10295	10537
2018	9025	10378
2019	10244	10081
2020	10451	8964
2021	9747	9511

Total Allowable Catch (TAC) and catch data

Table 2. Total allowable catch (TAC) and catch data by UoA.

North Atlantic Ocean albacore tuna				
TAC	Year	**2023**	Amount	**47,251 t**
UoA share of TAC	Year	**2024**	Amount	**256.248 t**
UoA share of total TAC	Year		Amount	
Total green weight catch by UoC	Year (most recent)		Amount	
Total green weight catch by UoC	Year (second most recent)		Amount	
South Atlantic Ocean albacore tuna				
TAC	Year	**2022**	Amount	**28,000 t**
UoA share of TAC	Year	**2024**	Amount	**0.187 t**
UoA share of total TAC	Year		Amount	
Total green weight catch by UoC	Year (most recent)		Amount	
Total green weight catch by UoC	Year (second most recent)		Amount	
Atlantic Ocean yellowfin tuna				
TAC	Year	**2023**	Amount	**110,000 t**
UoA share of TAC	Year	**2024**	Amount	**161.388 t**

UoA share of total TAC	Year		Amount	
Total green weight catch by UoC	Year (most recent)		Amount	
Total green weight catch by UoC	Year (second most recent)		Amount	
Atlantic Ocean bigeye tuna				
TAC	Year	**2024**	Amount	**62,000 t**
UoA share of TAC	Year	**2024**	Amount	**171.82 t**
UoA share of total TAC	Year		Amount	
Total green weight catch by UoC	Year (most recent)		Amount	
Total green weight catch by UoC	Year (second most recent)		Amount	
North Atlantic Ocean swordfish				
TAC	Year	**2022**	Amount	**13,200 t**
UoA share of TAC	Year	**2024**	Amount	**1.833 t**
UoA share of total TAC	Year		Amount	
Total green weight catch by UoC	Year (most recent)		Amount	
Total green weight catch by UoC	Year (second most recent)		Amount	
South Atlantic Ocean swordfish				

TAC	Year	**2022**	Amount	**14,000 t**
UoA share of TAC	Year	**2024**	Amount	**14.97 t**
UoA share of total TAC	Year		Amount	
Total green weight catch by UoC	Year (most recent)		Amount	
Total green weight catch by UoC	Year (second most recent)		Amount	

Principle 1 Performance Indicator scores and rationales

PI 1.1.1 – Stock status

PI 1.1.1		The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing		
Scoring Issue		SG 60	SG 80	SG 100
a	Stock status relative to recruitment impairment			
	Guide post	It is **likely** that the stock is above the point where recruitment would be impaired (PRI).	It is **highly likely** that the stock is above the PRI.	There is a **high degree of certainty** that the stock is above the PRI.
	Met?	NAO ALB: Yes SAO ALB: Yes AO YFT: Yes AO BET: Yes NAO SWO: Yes SAO SWO: Yes	NAO ALB: Yes SAO ALB: Yes AO YFT: Yes AO BET: No NAO SWO: Yes SAO SWO: Yes	NAO ALB: Yes SAO ALB: No AO YFT: No AO BET: No NAO SWO: No SAO SWO: No

Rationale

NAO ALB

The most recent stock assessment report from ICCAT in 2023 indicated the ratio of spawning biomass B_{2021} / B_{MSY} is estimated at 2.19 (95% CI: 1.21-4.01), and F_{2021}/F_{MSY} (ratio of current fishing mortality to fishing mortality at maximum sustained yield) was 0.45 (ICCAT SCRS 2023). Thus, the stock is highly likely to exceed the LRP ($0.4*B_{MSY}$), SG80 is met. Overfishing is not occurring, nor is the stock overfished. The 80% bootstrap confidence interval excludes 50% B_{MSY} by a wide margin, which suggests a high degree of certainty that recruitment is not being impaired; therefore, **SG100 is met** (Medley et al. 2020).

SAO ALB

The most recent SAO albacore stock assessment in 2020 used ASPIC and JABBA models based on standardised CPUE data to estimate the stock status. Across all scenarios, the median estimate of current B_{2018}/B_{MSY} was 1.58 (ranging between 1.14 and 2.05) and the median estimate of current F_{2018}/F_{MSY} was 0.40 (ranging between 0.28 and 0.59; ICCAT SCRS 2020). ICCAT has not defined an LRP, TRP or HCR for SAO ALB, and current B is 10% larger than B_{MSY} based on average modelling outcomes. In addition, the

SAO ALB catch in 2018 was 4,000 tonnes below the TAC, close to the lower bound of the 80% confidence interval (CI) for MSY (15,270 t), so the stock is not likely to have declined much since the assessment was conducted (Medley et al. 2020). **SG80 is met**; more evidence would be needed to reach the SG100 level.

AO YFT

The most recent stock assessment of YFT from ICCAT indicates the median estimate of B_{2018}/B_{MSY} is 1.17 and the median estimate of F_{2018}/F_{MSY} is 0.96, this indicates that the stock in 2018 was not overfished and SG80 is met. The estimation result is derived from the combination of Stock Synthesis, JABBA and MPB model runs chosen to develop the management advice.

The estimate of MSY is 121,300 tonnes is above the MSY and the adopted catch limit (110,000 tonnes). **SG80 is met**.

AO BET

The ICCAT SCRS 2021 shows a more pessimistic stock status than 2018 assessment. The ratio of F/F_{MSY} in 2019 was estimated at 1.00 (range: 0.63-1.35) and the ratio of spawning biomass B/B_{MSY} in 2019 was estimated at 0.94 (range: 0.71-1.37). This level is above the point where recruitment would be impaired and indicates the stock of AO BET is in an overfished status ("Yellow" quadrant in Kobe plot). Only **SG60 is met**.

NAO SWO

The latest stock assessment for north Atlantic swordfish estimated that the stock is at the MSY level (B_{2020}/B_{MSY} = 1.08) (0.71-1.33 confidence interval 95%). Therefore, it is highly likely that the stock is above the PRI. Likewise, the stock is estimated to be in the green quadrant of the Kobe plot (Figure 5). **SG80 is met**.

SAO SWO

The latest stock assessment for south Atlantic swordfish estimated that the stock biomass is below MSY (B_{2020}/B_{MSY} = 0.77) (0.53-1.11 confidence interval 95%) and that F_{2020} is above F_{MSY} (1.08) (0.71-1.33 confidence interval 95%). Likewise, the stock assessment estimated that there is a 56% probability that the stock is within the red quadrant the Kobe plot (Figure 2) **SG60 is met**.

According to MSC-GSA2.2.3.1, the proxy to be used as PRI for this stock must be $1/2B_{MSY}$, since it is a stock where there is an analytically determined B_{MSY}, which is equivalent to 0.38 of the virgin biomass. (B_{MSY}/k= 0.38). Taking all of the above into account, there is already more than 95% of the lower limit of the B/B_{MSY} ratio being above 0.5 (B/B_{MSY}= 0.77, with a 95% confidence interval between 0.53-11). Therefore, **SG80 is not met**.

	Stock status in relation to achievement of Maximum Sustainable Yield (MSY)

b	Guide post		The stock is at or fluctuating around a level consistent with MSY.	There is **a high degree of certainty** that the stock has been fluctuating around a level consistent with MSY or has been above this level over recent years.
	Met?		NAO ALB: Yes SAO ALB: Yes AO YFT: Yes AO BET: No NAO SWO: Yes SAO SWO: No	NAO ALB: No SAO ALB: No AO YFT: No AO BET: No NAO SWO: No SAO SWO: No

Rationale

<u>NAO ALB</u>

The SCRS 2023 concluded that the stock biomass is over MSY, which is 41,995 t. Recent fishing mortality was estimated to be below the MSY level (F_{2021}/F_{MSY}=0.45; 80% CI of 0.29 - 0.71), with catches since 2011 being maintained between 20,000 t and 31,000 t (Medley et al. 2020). **SG80 is met**.

Relative to MSY benchmarks, the Reference Case scenario estimates that the stock has been above B_{MSY} in the last decade (Figure 12) and fishing mortality below F_{MSY} for a slightly longer period.

However, the exact condition of the stock has not been determined with a high degree of certainty (ICCAT SCRS 2019). **SG100 is not met**.

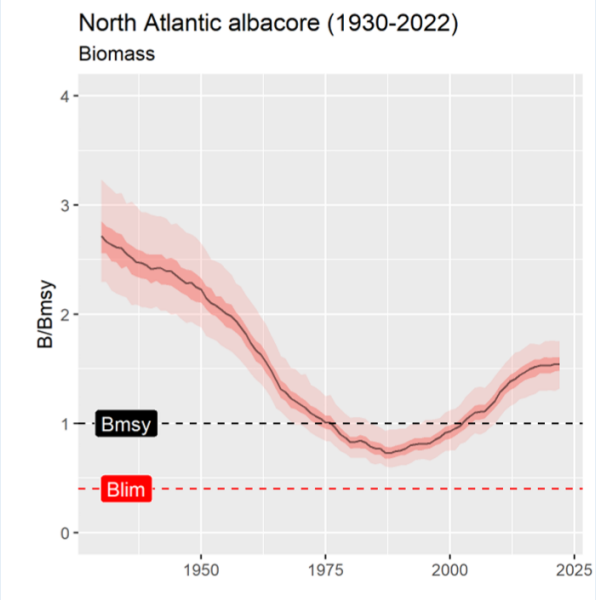

Figure 12: Relative biomass (B/BMSY) estimated from the bootstrap fit to catch and CPUE with mpb.

SAO ALB

The Kobe matrix indicates that catches around the MSY level of 27,000 t will maintain biomass levels above B_{MSY} and fishing mortality below F_{MSY} with a high probability of 90% over the projection horizon through 2033. In fact, due to the current high stock biomass, catches of up to 30,000 t are expected to maintain stock levels above B_{MSY} until 2033 with a probability higher than 60%. **SG80 is met.**

AO YFT

The ratio of spawning biomass B_{2018}/B_{MSY} is estimated at 1.17 and F_{2018}/F_{MSY} is estimated at 0.96.

The TAC adopted by ICCAT in 2016 was consistent with the advice provided by SCRS in recent years. However, recent catches have been above the TAC and MSY since 2015 and the SCRS has warned that catches above MSY levels are expected to further degrade the condition of the yellowfin stock in the future. In addition, TAC is not allocated between CPCs, which makes it difficult to enforce. Only **SG80 is met**.

AO BET

The ratio of spawning biomass B_{2019}/B_{MSY} in was estimated at 0.94, whilst F_{2019}/F_{MSY} was estimated at 1.00. furthermore, probability analysis indicated there was a greater than 80% probability that B_{2017}/B_{MSY} was less than 1 (ICCAT Secretariat 2018). Thus, the Atlantic bigeye stock appears to be below the B_{MSY} level. **SG80 is not met**.

NAO SWO

The stock assessment indicates that time series of maximum likelihood estimates of B/B_{MSY} indicate that at the start of the time series B/B_{MSY} = 5.01, decreased to a minimum of 0.76 in the year 2000, and subsequently increased to a terminal year estimate of 1.11 (Figure 13). However, according to JABBA, the

biomass declined to approximately 0.8 B_{MSY} by 2014 and increased again from 2016 to the current estimated B/B_{MSY} = 0.91 (Figure 5).

The latest stock assessment for north Atlantic swordfish estimated that the B_{2020}/B_{MSY} ratio is >1 (1.08, 0.71-1.33 confidence interval 95%), likewise, the F_{2020}/F_{MSY} ratio is <1, which indicates that the stock is not considered to be overfished. Therefore, the stock is fluctuating around MSY (Figure 13). **SG80 is met**.

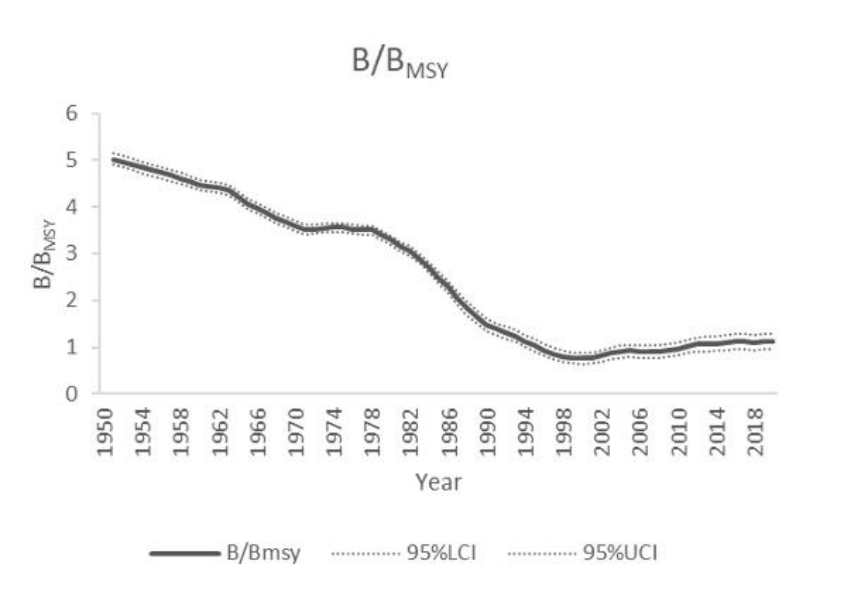

Figure 13: The stock in recent years shows consistent fluctuation around MSY

SAO SWO

The most recent stock assessment estimated that there is a decreasing trend in south Atlantic swordfish stock, which has recently stabilised somewhat but has remained at B/B_{MSY} < 1. The current median estimate is 0.77 (0.53 - 1.11) (Figure 14). Therefore, as the stock remained under the B_{MSY} for both models, **SG80 is not met.**

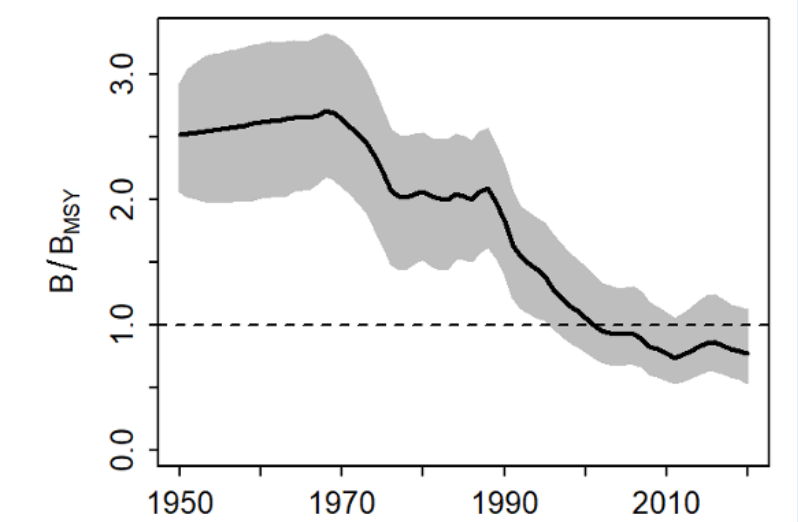

Figure 14: Biomass relative to B_{MSY} (B/B_{MSY}) using JABBA reference case model for South Atlantic swordfish.

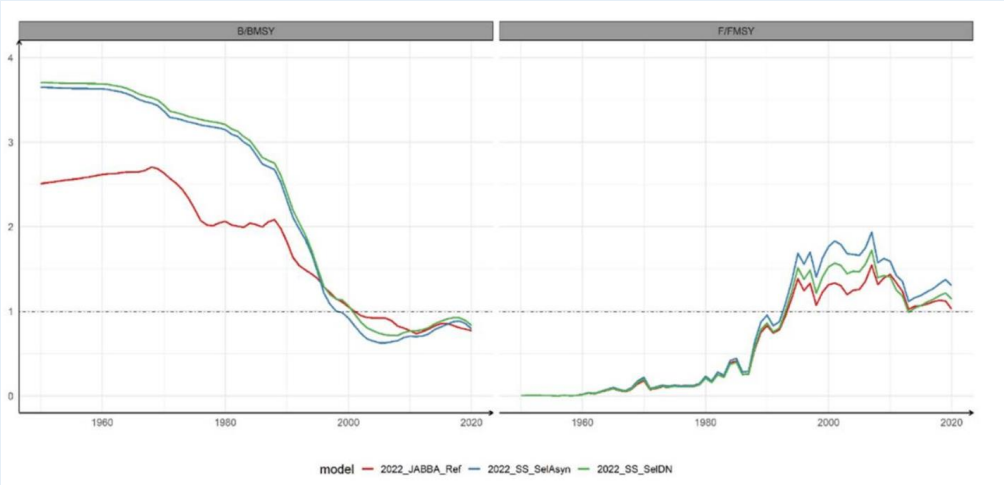

Figure 15: Comparisons of B/B_{MSY} and F/F_{MSY} between JABBA Reference case and two Stock Synthesis runs for the South Atlantic swordfish stock.

Stock status relative to reference points			
	Type of reference point	Value of reference point	Current stock status relative to reference point
Reference point used in scoring stock relative to PRI (SIa)	NAO ALB: $0.4*B_{MSY}$	B_{2021} = 519,799 t, B_{MSY} = 336,785 t, LRP = 134,714 t	B_{2021}/LRP = 3.86
	SAO ALB Proxy LRP: $0.4*B_{MSY}$	B_{2018} = 196,760.2 t, B_{MSY} = 124,453 t, LRP = 49,781.2 t	B_{2018}/LRP = 3.95

	AO YFT: 0.4*B_{MSY}	B_{2018} = 730,683.4 t, B_{MSY} = 623,450 t, LRP = 249,380 t	B_{2018}/LRP = 2.93
	AO BET: Proxy LRP 0.4*B_{MSY}	B_{2017} = 294,415.6 t, B_{MSY} = 413,506 t, LRP = 165,402 t	B_{2017}/LRP = 1.78
	NAO SWO: 0.4*B_{MSY}	B_{2020} = 84,061.59 t, B_{MSY} = 92,172.8 t, LRP = 36,869.12 t	B_{2020}/LRP = 2.28
	SAO SWO: 0.4*B_{MSY}	B_{2020} = 57623.05 t, B_{MSY} = 74,641.26 t, LRP = 29,856.5 t	B_{2020}/LRP = 1.93
Reference point used in scoring stock relative to MSY (SIb)	NAO ALB TRP: B_{MSY}	B_{MSY} = 336,785 t	B_{2021}/TRP = 1.54
	SAO ALB TRP: B_{MSY}	B_{MSY} = 124,453 t	B_{2018}/TRP = 1.58
	AO YFT TRP: B_{MSY}	B_{MSY} = 623,450 t	B_{2018}/TRP = 1.17
	AO BET TRP: B_{MSY}	B_{MSY} = 413,506 t	B_{2017}/TRP =0.712
	NAO SWO TRP: B_{MSY}	B_{MSY} = 92,172.8 t	B_{2020}/TRP = 0.91
	SAO SWO TRP: B_{MSY}	B_{MSY} = 74,641.26 t	B_{2020}/TRP = 0.77

Overall Performance Indicator (PI) Rationale	
Draft scoring range	**Total: 60-79** NAO ALB: ≥ 80 SAO ALB: ≥ 80 AO YFT: ≥ 80 AO BET: 60-79 NAO SWO: ≥ 80 SAO SWO: 60-79
Information gap indicator	Information sufficient to score PI
Data-deficient? (Risk-Based Framework needed)	No

PI 1.1.2 – Stock rebuilding

PI 1.1.2		Where the stock is reduced, there is evidence of stock rebuilding within a specified timeframe		
Scoring Issue		SG 60	SG 80	SG 100
a	Rebuilding timeframes			
	Guide post	A rebuilding timeframe is specified for the stock that is the shorter of 20 years or 2 times its generation time. For cases where 2 generations is less than 5 years, the rebuilding timeframe is up to 5 years.		The shortest practicable rebuilding timeframe is specified which does not exceed one generation time for the stock.
	Met?	NAO ALB: n/a SAO ALB: n/a YFT: n/a AO BET: Yes NAO SWO: N/a SAO SWO: yes		NAO ALB: n/a SAO ALB: n/a YFT: n/a AO BET: No NAO SWO: N/a SAO SWO: No

Rationale

<u>NAO ALB, SAO ALB, AO YFT, NAO SWO</u>

All UoAs achieved ≥80 for PI 1.1.1. Thus, following the MSC standard, this PI does not need to be assessed.

<u>AO BET</u>

The SCRS estimated that a future constant catch of 62,000 t will have a 97% probability of maintaining the stock in the green quadrant of the Kobe plot by 2034.

The rebuilding time frame of 2033 is within 20 years or 2 times its generation time (for bigeye tuna, generation time is around 6.5 years; Medley et al. 2020). **SG60 is met**. A shorter practicable rebuilding timeframe has not been specified, so **SG100 is not met**.

<u>SAO SWO</u>

The average catch for the period 2016-2020 was 10,125 t, yet the assessment indicates a 56% probability that the stock is within the red quadrant in 2020.

According to SCRS (2022, using this three-year average (9,826 t) assumed in the 2022 stock assessment, the South Atlantic swordfish stock has a 55% probability of being in the green quadrant of the Kobe plot by 2033. The rebuilding time frame of 2033 is within 20 years or 2 times its generation time (for swordfish, generation time is around 8.9 years). **SG60 is met.**

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

Rationale

<u>NAO ALB, SAO ALB, AO YFT, NAO SWO</u>

These UoAs achieved ≥80 for PI 1.1.1. Thus, following the MSC standard, they do not need to be assessed for this PI.

<u>AO BET</u>

The ICCAT continuously monitors the utilisation of AO BET via catch monitoring and regular stock assessment (Medley et al. 2020). Monitoring should be enough to determine effectiveness of the rebuilding process; thus SG 60 is met. Simulation modelling indicated if the fishing is maintained below current TAC, Atlantic bigeye tuna should be able to achieve convention objectives by 2031 with 44% probability, but the TAC has been constantly exceeded from 2016 to 2018 (ICCAT SCRS 2019). There is no evidence that

current rebuilding strategies (mainly the TAC and catch control measures) are rebuilding stocks since overfishing is still occurring (ICCAT SCRS 2019). **SG80 is not met**.

SAO SWO

The current TAC of 14,000 t (Rec. 22-04) is unlikely (3% probability) to result in the stock being in the green quadrant of the Kobe plot by 2033. The reported catch for 2022 was 8,743 t. Catch levels less than 10,000 t will accelerate rebuilding.

The Committee emphasises the importance of the uncertainties and recommends, including the removals associated with the mortality of unreported dead and post release mortality of live discards and management boundaries between North and South SWO, that the stock be closely monitored in the upcoming years to confirm rebuilding.

The stock is expected to remain above BMSY with 52% probability (not overfished) and remain in the green quadrant of the Kobe plot with a probability higher than 50% at the end of the projection period (2033) **SG60 is met**.

Overall Performance Indicator (PI) Rationale	
Draft scoring range	**Total: 60-79** NAO ALB: n/a SAO ALB: n/a AO YFT: n/a AO BET: 60-79 NAO SWO: N/a SAO SWO: 60-79
Information gap indicator	Information sufficient to score PI

PI 1.2.1 – Harvest strategy

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

Rationale

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

Data collection on the stock and fishery (described further in PI 1.2.3 below)

Stock assessment (described further in PI 1.2.4 below)

Limit reference points, and in some cases, interim target reference points (described in PI 1.1.1 above)

Harvest control rules that are 'available' or in place (described further in PI 1.2.2 below)

Management strategy evaluations for evaluate harvest control rules in certain managed species (described further in PI 1.2.2 below)

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

NAO ALB

Recommendation 21-04 and an updated version Rec. 23-05 provides a Management Procedure (MP) (including an HCR) to support the management objectives for North Atlantic albacore. The North Atlantic albacore stock assessment shall be conducted every three years, with the next stock assessment to occur in 2026.

Rec 21-04 has established several goals for harvest strategy, such as maintaining the stock in the green quadrant of the Kobe plot ($SSB>SSB_{MSY}$ and $F<F_{MSY}$) with at least 60% of probability, establishing a biomass limit reference point of $0.4*B_{MSY}$ (LRP), and setting TRP as F_{TAR} as $0.8 * F_{MSY}$.

The estimates of current biomass and reference points come from regular stock assessments by SCRS. To mitigate risks of an inaccurate stock assessment, the TAC (47,251 t) (Rec. 23-05) has been set for fishing years 2024-2026. This highlights the adaptive nature of the management for this stock as it has been updated since Rec. 21-04 to ensure that the stock is not overexploited. The TAC is also allocated to participating countries and are monitored. The elements of the harvest strategy thus work together and are designed to achieve management objectives. **SG80 and SG100 are met**.

SAO ALB

SCRS noted that total annual declared catches were considerably lower than MSY in 2020 (ICCAT Secretariat 2020). Since the current stock status is healthy (ICCAT 2020), it appears that the harvest strategy elements are responsive to the state of the stock and work together towards achieving sustainable management objectives. **SG80 is met**. A designed fishery management strategy tailored to the SPO ALB has not existed yet, **SG100 is not met**.

AO YFT

The commission has developed a mandatory response to a stock being overfished or being subject to overfishing, involving adoption of management measures to allow the stock to recover (Recommendation 11-13). There are some fishing area/time closures (Recommendation 14-01), though an external review panel found these have had minimal impact reducing fishing mortality on yellowfin juveniles as intended and have also been subject to unplanned changes (Recommendation 15-01).

The harvest strategy for AO YFT includes periodically monitored TAC without specific allocation plan for respective countries, quarterly reporting to the Secretariat of the amount of tropical tuna by species caught, and limits on the number of FADs that purse seine vessels can use. ICCAT adopted catch limits (TACs) under ICCAT Recommendation 22-01 to limit catches to 110,000 t for yellowfin tuna

However, the TAC has been set at a constant level and catches have exceeded the TAC since 2014, with no predefined plan of action to reduce them. **SG80 is met**.

AO BET

Currently, Atlantic bigeye tuna is mainly managed through TAC and controls on fishing capacity, seasonal closures in specific areas, and restrictions on FAD usage by purse seine vessels to conserve small sized tuna (ISSF 2024). However, the SCRS has observed that the area-time closures have not achieved their objective and that there have been negligible.

The Commission should be aware that increased harvests on small fishes could have had negative consequences for the productivity of bigeye tuna fisheries. Thus, **SG60 is met** while **SG80 is not met**.

NAO SWO

The 2022 stock assessment shows the probabilities of maintaining $B>B_{MSY}$, maintaining $F<F_{MSY}$, and maintaining the stock in the green quadrant of the Kobe plot over a range of TAC options for North Atlantic swordfish over a period of 10 years. The combined Stock Synthesis and JABBA projections show that a 13,200 t constant catch, which is the current TAC level (Rec. 22-03), will result in a 60% probability of being in the green quadrant in 2033.

However, uncertainties associated with other information such as actual mortality of unreported dead should also be taken into consideration by the Commission. **SG80 is met**.

SAO SWO

ICCAT Recommendation 22-04 replaces 17-03 and implements new TAC and catch limits for the stock. For the years 2023, 2024, 2025, and 2026, the TAC shall be 10,000 t for SAO swordfish. Catch levels less than 10,000 t will accelerate rebuilding. The reported catch for 2022 was 8,743 t. The Recommendation outlines that any CPCs that catch over their quota will be required to adjust their TAC for the following years. Because TAC has been lowered from 14,000 t in 2018 to 10,000 t in 2023, it is thought that the measure is responsive to the state of the stock and is designed to keep the population B_{MSY} above the PRI and fluctuating around a level consistent with MSY. **SG60 is met**.

As this is the only measure in place, it cannot be stated that elements of the harvest strategy “work together” and thus **SG80 is not met**.

b	Harvest strategy evaluation			
	Guide post	The harvest strategy is **likely** to work based on prior experience or plausible argument.	The harvest strategy may not have been fully **tested** but evidence exists that it is achieving its objectives.	The performance of the harvest strategy has been **fully evaluated** and evidence exists to show that it is achieving its objectives including being clearly able to

				maintain stocks at target levels.
	Met?	NAO ALB: Yes SAO ALB: Yes AO YFT: Yes AO BET: Yes NAO SWO: Yes SAO SWO: Yes	NAO ALB: Yes SAO ALB: Yes AO YFT: Yes AO BET: No NAO SWO: Yes SAO SWO: No	NAO ALB: No SAO ALB: Yes AO YFT: No AO BET: No NAO SWO: No SAO SWO: No

Rationale

NAO ALB

Since the stock is above B_{MSY} and fishing mortality is below F_{MSY}, evidence suggests that the harvest strategy is achieving its objectives. In addition, MSE is ongoing and thus SG80 is therefore met. SG100 is not met as the harvest strategy is not yet finalised and has not been fully evaluated, based on available information. **SG80 is met.**

SAO ALB

Since the stock is above B_{MSY} and fishing mortality is below F_{MSY}, evidence suggests that the harvest strategy is achieving its objectives. A formal TAC is established, and allocations of catch has been determined by the Commission (Rec. 22-06). **SG80 is met.**

AO YFT

Since the stock is above B_{MSY} and fishing mortality is below F_{MSY}, indicating that the stock is not overfished or experiencing overfishing. This indicates that the strategy is likely to work and is achieving its objectives. The fact that the stock has remained near B_{MSY} in recent years is evidence that the harvest strategy is achieving its objectives currently, despite recent overages on the TAC that may jeopardise its ability to continue to do so. **SG80 is met**.

MSE is underway to develop a new harvest strategy for yellowfin tuna, but the current strategy has not been fully evaluated. The current stock status above B_{MSY} is heavily influenced by the timeline of historical exploitation. It is not clear that the harvest strategy (rather than the history of fishery development) is responsible for maintaining stocks at target levels currently, especially in the context of recent TAC overages. **SG100 is not met**.

AO BET

The AO BET stock is experiencing overfishing (ICCAT SCRS 2019). This indicates the current harvest strategies may not be adequate to maintain the stock at the MSY level. ICCAT is currently applying a constant TAC, fishing capacity controls via limits on the numbers of authorised vessels, and specific regional and seasonal closures to conserve small sized bigeye. Based on model projections in SCRS 2021, it estimated that a future constant catch of 62,000 t will have a 97% probability of maintaining the stock in the green quadrant of the Kobe plot by 2034. Therefore, the strategy is thought “likely to work”. **SG60 is met**.

This probability may be improved by implementation of the additional measures agreed by the commission' (e.g., limitations on 300 FADs usage per year; ISSF 2024). The estimate of MSY was 86,800 tonnes (range: 72,200 to 106,400 tonnes). MSY has been reduced considerably through harvest of small bigeye. Current catches (62,500 tonnes) are below the MSY, but above the adopted catch limit (62,000 tonnes). Therefore, as the TAC has been repeatedly exceeded, the evidence suggests that it is not working. **SG80 is not met**.

NAO SWO

The plan reduced TACs until signs of stock recovery were observed by the SCRS. Subsequent catches and stock assessments indicated that the TACs were respected, and the stock recovered to target levels. This is direct evidence of the harvest strategy in action, based on prior experience. Thus, both **SG60 and SG80 are met**.

The ongoing MSE for swordfish is intended to fully evaluate the harvest strategy. The North SWO MSE technical team will work to recondition the operating model grid using the updated indices, catch data, and the 2022 SS3 base case. Adoption of an interim management procedure based on the MSE is not expected until 2023. **SG100 is not met**.

SAO SWO

The SAO SWO stock is overfished, and overfishing is occurring. Using this three-year average (9,826 t) assumed in the 2022 stock assessment, the South Atlantic swordfish stock has a 55% probability of being in the green quadrant of the Kobe plot by 2033. The reported catch from 2018-2022 averaged 9,531 t, which is less than 2023-2026 TAC (10,000 t) in Rec. 22-04.

At this stage, the HS is achieving its objectives to presently maintaining the Status of the Stock in relation an agreed biological reference point (PRI for B/B_{MSY} ratio ≥ 0.5), and there is a >50% probability that the stock will reach the MSY by 2033. Therefore, **SG60 is met**.

As the new TAC entered into implementation in 2024, there is currently insufficient data to evidence that the strategy is achieving its objectives. **SG80 is not met**.

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

Rationale

ICCAT member (and some cooperating non-member) states report catch and effort for their commercial fleets exploiting these stocks on an annual basis. The fishing efforts of the six assessed species are monitored by ICCAT regularly with stock assessments taking place every three years. **SG60 is met** for all target stocks.

d	Harvest strategy review			
	Guide post			The harvest strategy is periodically reviewed and improved as necessary.
	Met?			NAO ALB: No SAO ALB: No AO YFT: Yes AO BET: No NAO SWO: No SAO SWO: No

Rationale

NAO ALB

There is no evidence of formal periodic review of the harvest strategy. SCRS has reviewed the NAO albacore harvest strategy through MSE (Merino et al. 2019), but the review process is irregular and has not yet provided clear evidence of improvements. **SG100 is not met**.

SAO ALB

There is no proof of formal periodic review of the harvest strategy. Management strategy evaluations have been applied for NAO albacore (ICCAT SCRS 2023) but not SAO albacore, and clear evidence of actual improvements to the harvest strategy is lacking. **SG100 is not met**.

AO YFT

Every 4-6 years a complete stock assessment is done by SCRS, and reviews and updates are made annually. The process of review and improvement of the Multiannual Program for the conservation and management of Tropical Tunas has been happening annually since its inception in 2011. Consequently, the current harvest strategy is considered interim until the conclusion of this process, scheduled for adoption in 2025 and implementation from 2026, theoretically at least. **SG100 is met**.

AO BET

There is no proof of formal periodic review of the harvest strategy. **SG100 is not met**.

NAO SWO

2022 stock assessment shows the probabilities of maintaining $B>B_{MSY}$, maintaining $F<F_{MSY}$, and maintaining the stock in the green quadrant of the Kobe plot over a range of TAC options for North Atlantic swordfish over a period of 10 years. The TAC is also monitored through SS and JABBA model assessments.

Furthermore, the ongoing MSE development encompasses 1) operating model (OM) conditioning, 2) OM validation, 3) development of candidate management procedures (cMPs), 4) assumptions for the closed-loop simulation testing, and 5) calculating performance of the cMPs. This demonstrates that the harvest strategy is and will continue to be reviewed and improved as necessary. **SG100 is met**.

SAO SWO

Although stock assessment was updated in 2022, the TAC still exceeds three-year average (9,826 t) assumed in the 2022 stock assessment. Additionally, there is very limited evidence to support if harvest strategy of SAO SWO is reviewed periodically and improved accordingly. **SG100 is not met**

	Shark finning

e	Guide post	It is **likely** that shark finning is not taking place.	It is **highly likely** that shark finning is not taking place.	There is a **high degree of certainty** that shark finning is not taking place.
	Met?	N/a	N/a	N/a

Rationale

Target species is not a shark therefore NA.

f	Review of alternative measures			
	Guide post	There has been a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **regular** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock and they are implemented as appropriate.	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock, and they are implemented, as appropriate.
	Met?	N/a	N/a	N/a

Rationale

There is no considered “unwanted catch” of the target species. Therefore N/a.

Overall Performance **Indicator (**PI) Rationale	
Draft scoring range	**Total: 60-79** NAO ALB: ≥ 80 SAO ALB: ≥ 80 AO YFT: ≥ 80 AO BET: 60-79 NAO SWO: ≥ 80 SAO SWO: 60-79

Information gap indicator	Information sufficient to score PI

PI 1.2.2 – Harvest control rules and tools

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

Rationale

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

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

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

An agreement or framework is in place that requires the management body to adopt HCRs before the stock declines below B_{MSY}.

NAO ALB

SG80 is met as an external peer review confirmed the interim HCR adopted by the commission in 2017 had a robust scientific basis and is expected to keep the stock around the MSY level (ICCAT SCRS 2019). Moreover, a fishing mortality target corresponding to 80% of F_{MSY} (FTAR = 0.8*F_{MSY}) will be applied only when the stock status is at, or above, the threshold level (BTHRESH). However, the HCR has not been in place long enough to determine whether it will be effective most of the time. **SG 100 is not met**.

SAO ALB

There is no well-defined HCR for this stock that is able to reduce the exploitation rate as the PRI is approached. However, ICCAT sets a TAC that is adjusted based on stock assessment outcomes, in order to maintain stock at or above the MSY level (ICCAT Secretariat 2020). This can be considered a 'generally understood' HCR since stock biomass has been maintained around an MSY level (ICCAT SCRS 2019), **meeting SG60**. Besides not being well-defined, there is no evidence indicating that the generally understood HCR will keep the stock fluctuating around or above the MSY level. **SG80 is not met**.

AO YFT

According to the International Seafood Sustainability Foundation (ISSF), Status of the World tuna Fisheries Report (2024), there are insufficient HCRs in place for AO YFT to score 60 at the MSC assessment level (ISSF, 2024). There is no well-defined HCR for this stock that is able to reduce the exploitation rate as the PRI is approached. However, ICCAT sets a TAC that is adjusted in order to maintain stock at or above the MSY level (ICCAT Secretariat 2020). This can be considered a 'generally understood' HCR since stock biomass has been maintained around an MSY level (ICCAT SCRS 2019). Furthermore, official MSC assessment reports for AO YFT have passed this Performance Indicator and Scoring Issue. Therefore, we are harmonising the scoring with these (Polonio, et al., 2024). Therefore, **SG60 is met**.

No explicit HCR based on reference points has been established for yellowfin tuna. Yellowfin reference points and associated HCRs are being developed through MSE under Recommendation 15-07, and operating models have been developed and conditioned to the most recent stock assessment. In the meantime, the existing measures therefore treat B_{MSY} as an implicit TRP, and there is no LRP. The HCR is not well defined and **SG80 is not met**.

AO BET

There is no well-defined HCR for the target stock, as there is no specific control plan for limiting the exploitation rate as the stock size declines below the MSY level. Current bigeye management measures are intended to reduce harvest and rebuild the stock based on scientific advice as the stock declines, suggesting that a generally understood HCR is in place (Medley et al. 2020). According to the ISSF, Status of the World tuna Fisheries Report (2024), there are sufficient HCRs in place for AO BET to score

65 at the MSC assessment level (ISSF, 2024). As the ISSF is notoriously precautionary in the scoring, it can be believed that the score is appropriate for the stock and thus only **SG60 is met**.

NAO SWO

Since 2017 stock assessment (updated in 2022), SCRS contracted MSE technical expert to develop OM framework, define initial set of OMs, and conduct initial conditioning of OMs. Through constant working on operating model conditioning, refinement of the uncertainty grid, development of example cMPs, SCRS initiated independent peer review of MSE process in 2022. Commission also (annual meeting) adopted an interim MP at the Annual Meeting, including the TAC in 2023.

As HCR is sustained and continuously updating, it is therefore expected to keep the stock fluctuating around B_{MSY}. **SG80 is met**.

The HCR does not trigger any management action until the stock declines to 65% of B_{MSY}. Additionally, the rebuilding plan objective is to reach B_{MSY} with only 50% probability or more, rather than a higher probability that would be expected to keep the stock at or above rather than around B_{MSY}. **SG100 is not met**.

SAO SWO

SCRS (2022) indicates the current TAC of 10,000 t (Rec. 22-04). The status of the stock in relation an agreed biological reference point (PRI for B/B_{MSY} ratio ≥ 0.5), and, using the three-year average (9,826 t) there is a >50% probability that the stock will reach the MSY by 2033. The interim Blim reference point is currently $0.4*B/B_{MSY}$. Therefore, there are generally understood HCRs in place that are expected to reduce the exploitation rate as PRI is approached. **SG60 is met**.

The measures are also designed to bring the stock to the MSY by 2033. **SG80 is met**.

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

			AO YFT: Yes AO BET: No NAO SWO: Yes SAO SWO: Yes	AO YFT: No AO BET: No NAO SWO: No SAO SWO: No

Rationale

NAO ALB

An external peer review confirmed the interim HCR adopted by the commission in 2017 had a robust scientific basis and is expected to keep the stock around the MSY level (ICCAT SCRS 2019). Moreover, a fishing mortality target corresponding to 80% of F_{MSY} (FTAR = 0.8*F_{MSY}) will be applied only when the stock status is at, or above, the threshold level (BTHRESH). However, the HCR has not been in place long enough to determine whether it will be effective most of the time. **SG 80 is met**.

SAO ALB

The effectiveness of the Harvest Control Rule (HCR) undergoes testing across various fixed catches and fishing mortality scenarios, with outcomes reported as probabilistic results. SCRS highlights significant uncertainties persisting in the biology, fisheries, and modelling of Atlantic albacore, which have yet to be thoroughly assessed. The SCRS has raised concerns regarding recent catches of southern albacore (2017-2018) falling below (~60%) the advised TAC set forth in Recommendation 16-07 (24,000 t). It is crucial to discern whether this discrepancy is attributable to capacity, catchability, or indicative of stock abundance levels incongruent with the results of stock assessment. Therefore, **SG80 is not met**.

AO YFT

The stock assessments carried out routinely for yellowfin tuna provide the Commission with estimates of projected biomass for a range of TAC options along with the associated probability of being at or above B_{MSY}. The scientific advice has also informed the Commission on TACs that would achieve a specified probability of being at or above B_{MSY}. These probabilities are based upon the main uncertainties in the stock assessment, with consideration of alternative assessment approaches and multiple sensitivity tests (Polonio, et al., 2024). The HCR can therefore be considered to take account of the main uncertainties (due to data, assumptions and assessment model) in setting harvest levels. Therefore, **SG80 is met**.

AO BET

There is no well-defined HCR for the target stock, as there is no specific control plan for limiting the exploitation rate as the stock size declines below the MSY level. Therefore, there is no way to measure the HCRs to determine if they are robust to main uncertainties. According to the International Seafood Sustainability Foundation (ISSF), Status of the World tuna Fisheries Report (2024), there are sufficient HCRs in place for AO BET to score 65 at the MSC assessment level (ISSF, 2024). As the ISSF is

notoriously precautionary in the scoring, it can be believed that the score is appropriate for the stock. Therefore, **SG80 is not met**.

NAO SWO

The stock assessments carried out provide extensive research and estimates on the most efficient TAC to implement for the stock to ensure that biomass is not overexploited and in relation to meeting MSY and preventing the approach to PRI. The probabilities associated with the stock assessments are indicative of the consideration of main uncertainties. Therefore, **SG80 is met**.

SAO SWO

The stock assessments carried out provide extensive research and estimates on the most efficient TAC to implement for the stock to ensure that biomass is not overexploited and in relation to meeting MSY and preventing the approach to PRI. The probabilities associated with the stock assessments are indicative of the consideration of main uncertainties. Therefore, **SG80 is met**.

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

Rationale

NAO ALB

The stock is considered healthy for NAO ALB in terms of fishing mortality and recent catches with regards to B_{MSY}. Nevertheless, the effectiveness and appropriateness of HCR requires more analysis through years of observation. **SG100 is not met**.

SAO ALB

The current management approach involves tools as the annual establishment of agreed-upon Total Allowable Catches (TACs) and their allocation to ICCAT members, contributing to the recovery of the South Atlantic albacore stock to BMSY levels. There is some indication that adjustments to the TAC have been made in response to scientific findings, with evidence suggesting that a lower TAC would effectively decrease mortality rates. Rec. 22-06 suggests 28,000 t as a new TAC for 2023-2026. However, individual allocations of catch limit may result in exceeding TAC. **SG60 is met**.

AO YFT

The AO YFT stock is managed using a TAC to control the exploitation rate (ICCAT Secretariat 2020). However, recent catches have been above the TAC and MSY since 2015 and the SCRS has warned that catches above MSY levels will exacerbate the yellowfin stock in the future. Well-defined harvest control rule is currently lacking for yellowfin tuna; thus, no specific plan is in place to manage the stock if it declines below the maximum sustainable yield level. The approach to harvest control for yellowfin and bigeye tuna is largely similar, primarily relying on setting TACs to regulate exploitation rates (Rec. 22-01 extended in Rec. 23-01). Although specific limits on fleet capacity have been imposed and there is some evidence of a decline in exploitation rates as a result, adjustments in the TAC and management measures in response to changes in stock status have yet to be implemented (Polonio, et al., 2024). However, if enacted, these adjustments are expected to facilitate stock recovery, Therefore, **SG60 is met**.

AO BET

The estimate of MSY was 86,800 tonnes (range: 72,200 to 106,400 tonnes). MSY has been reduced considerably through harvest of small bigeye. Current catches (62,500 tonnes) are below the MSY, but above the adopted catch limit (62,000 tonnes). Capacity limitation consisting in each member producing an annual capacity/fishing plan that outlines how its overall longline and purse seine fleet capacity will be managed to ensure that the member can meet its obligation to limit the catch of bigeye, and its yellowfin and skipjack catches. According to the International Seafood Sustainability Foundation (ISSF), Status of the World tuna Fisheries Report (2024), there are sufficient HCRs in place for AO BET to score 65 at the MSC assessment level (ISSF, 2024). As the ISSF is notoriously precautionary in the scoring, it can be believed that the score is appropriate for the stock and thus **SG60 is met**.

NAO SWO

With self-managed catch limit in respective member countries, minimum size regulation, and TAC, the HCR is generally understood and are appropriate and effective in achieving the required exploitation

levels. Tracking from the rebuilding plan in late 90s, the B_{MSY} has been effectively controlling exploitation, or decline of fishing mortality. Consequently, **SG80 is met**.

SAO SWO

Minimum size regulations have been established for the Convention area and catches are consistently well below the TAC, but model shows the current TAC (10,000 t) has a 53% probability that the stock will be at MSY in 2033. The reported catch for 2022 was 8,743 t. Catch levels less than 10,000 t are expected to accelerate rebuilding. **SG60 is met**. However, as there has been no indication or recent assessment since the implementation of the new TAC, there is no available evidence to demonstrate this and thus **SG80 is not met**.

Overall Performance Indicator (PI) Rationale	
Draft scoring range	**Total: 60-79** NAO ALB: ≥ 80 SAO ALB: 60-79 AO YFT: 60-79 AO BET: 60-79 NAO SWO: ≥ 80 SAO SWO: 60-79
Information gap indicator	Information sufficient to score PI

PI 1.2.3 – Information and monitoring

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

Rationale

NAO ALB, SAO ALB, AO YFT

ICCAT collects data including catch, effort, and size composition. Harvest strategy for each species is developed and adjusted based on MSE. Although some errors may occur, the data are sufficiently collected to monitor and improve the HCRs. Likewise, the ICCAT website has a repository of all information on the species and the fishery. Therefore, there is sufficient relevant information related to stock structure, stock productivity, and fleet composition. **SG80 is met**.

AO BET

ICCAT collects data including catch, effort, and reduces uncertainties through CPUE and stock evaluation. Regular stock assessments are conducted on this stock to ensure that relevant scientific data and evidence is made available for analysis and interpretation of the stock status and health. Likewise, the ICCAT website has a repository of all information on the species and the fishery. Therefore, there is sufficient relevant information related to stock structure, stock productivity, and fleet composition. **SG80 is met**.

NAO SWO

Stock assessment consists of multiple model types and sensitivity analyses to justify assumptions and recognise uncertainties and risks. Other information acquired through, for instance, tagging and genetics are also crucial to establish stock structure. Likewise, the ICCAT website has a repository of all information on the species and the fishery. Therefore, there is sufficient relevant information related to stock structure, stock productivity, and fleet composition. **SG80 is met**.

However, **SG100 is not yet met** in that some environmental and ecological data are still absent.

SAO SWO

Regular stock assessments take place for this stock by ICCAT, and the reports include all references to information sources. Likewise, the ICCAT website has a repository of all information on the species and the fishery. Therefore, there is sufficient relevant information related to stock structure, stock productivity, and fleet composition. **SG80 is met**.

b	Monitoring			
	Guide post	Stock abundance and UoA removals are monitored and **at least one indicator** is available and monitored with sufficient frequency to support the harvest control rule.	Stock abundance and UoA removals are **regularly monitored at a level of accuracy and coverage consistent with the harvest control rule**, and **one or more indicators** are available and monitored with sufficient frequency to support the harvest control rule.	**All information** required by the harvest control rule is monitored with high frequency and a high degree of certainty, and there is a good understanding of inherent **uncertainties** in the information [data] and the robustness of assessment and management to this uncertainty.
	Met?	All UoAs: Yes	All UoAs: Yes	All UoAs: No
Rationale				

All UoAs

Stock abundance and UoA removals are regularly monitored. Logbook and observer programme are taken in place to support removals of all species by the UoA. Data is adequate to update the CPUE indices and develop HCRs. **SG80 is met** for all UoAs.

Despite occasional delays, including incomplete catch reports of YFT in 2018, most assessments are assessed with sufficient monitoring of catch and effort and HCRs for all stocks.

Still, uncertainties in HCRs for all stocks remain the gaps that SCRS needs to address, and hence **SG100 is not met**.

C	Comprehensiveness of information			
	Guide post		There is good information on all other fishery removals from the stock.	
	Met?		All UoAs: Yes	

Rationale

All UoAs

Catch data are mainly collated from commercial fisheries. Information is generally robust except for some small countries that have relatively weak capacity in reporting catch. Regular reporting of catches to ICCAT are made by CPCs every year and are discussed during the annual plenary meetings. CPCs are mandated to incorporate the collection of bycatch and discard data within their respective national scientific observer schemes and logbook programs (Rec 11-10). Any additional fishing removals from the stock consist solely of illegal, unreported, and unregulated (IUU) fishing activities, if at all present. ICCAT has implemented significant measures to combat IUU fishing, as highlighted in Rec (03-16) and Rec (11 18). **SG80 is met** for all UoAs.

Overall Performance Indicator (PI) Rationale	
Draft scoring range	**Total: ≥ 80** NAO ALB: ≥ 80 SAO ALB: ≥ 80

	AO YFT: ≥ 80 AO BET: ≥ 80 NAO SWO: ≥ 80 SAO SWO: ≥ 80
Information gap indicator	Information sufficient to score PI
Data-deficient? (Risk-Based Framework needed)	No

PI 1.2.4 – Assessment of stock status

PI 1.2.4		There is an adequate assessment of the stock status		
Scoring Issue		SG 60	SG 80	SG 100
a	Appropriateness of assessment to stock under consideration			
	Guide post		The assessment is appropriate for the stock and for the harvest control rule.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.
	Met?		NAO ALB: Yes SAO ALB: Yes AO YFT: Yes AO BET: Yes NAO SWO: Yes SAO SWO: Yes	NAO ALB: No SAO ALB: No AO YFT: No AO BET: Yes NAO SWO: Yes SAO SWO: No

Rationale

NAO and SAO ALB

The most recent stock assessments of albacore tuna in North (2023) and South (2023) contain a variety of species information including catch, size, and fishing effort.

SS and MPB were introduced to model assessment, variables include 15 fleets and 8 abundance indices. Stock references points were identified based on full consideration of all scenarios (ICCAT SCRS 2023).

However, SCRS 2023 advised that the new MSE should further evaluate several uncertainties and robustness set, such as natural mortality, recruitment variability, component weighting in models, changes in unfished recruitment, and changes in recruitment variability. **SG80 is met**.

AO YFT

The ICCAT regularly assesses the Atlantic yellowfin tuna stock, and the newest assessment was conducted in 2019. They used and compared results from three different models: a biomass dynamics model (MPD), a state-space Bayesian biodynamics model (JABBA), and a statistical age structured model (Stock Synthesis v3, ICCAT 2019). Recognising the inherent uncertainty in population dynamics, it was

deemed necessary to incorporate the results from all credible model runs to inform management decisions effectively **SG80 is met**. Although the assessment appears to be appropriate to understand the status of stock, uncertainties regarding fishing mortality and biomass remain significant. **SG100 is not met**.

AO BET

The ICCAT regularly assesses the Atlantic bigeye tuna stock, and the newest assessment was conducted in 2021. The assessment was assessed through multiple models that are considered robust and appropriate to understand stock status, risks, and uncertainties. **SG80 is met**.

In addition, tagging research is undergoing to continuously calibrate stock status of Atlantic bigeye (SCRS 2021). **SG100 is met**.

NAO and SAO SWO

In 2017, Bayesian surplus production model (BSP2) and Stock Synthesis (SS) were introduced to SCRS, and the result did a significant improvement to understand the current stock status and advice to the implementation of HCRs. **SG80 is met**.

During the latest stock assessments conducted on both NAO and SAO stocks, models have been used that constitute a significant improvement in considering and representing the uncertainty of the current status of the stocks. Complex and high scientific quality of the Stock assessments are prepared by experts from the best research institutions of the CPCs and also counting with external experts in fisheries on modelling if needed. **SG80 is met**.

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

Rationale

All UoAs

All stock assessments conducted by ICCAT consider stock status in relation to reference points, related to MSY which are also used to determine HCRs where applicable. These reference points appear appropriate to the respective stocks (ICCAT 2019, ICCAT SCRS 2019). **SG80 is met** for all UoAs.

C	Uncertainty in the assessment			
	Guide post	The assessment **identifies major sources** of uncertainty.	The assessment **takes uncertainty into account**.	The assessment takes into account uncertainty and is evaluating stock status relative to reference points in a **probabilistic** way.
	Met?	NAO ALB: Yes SAO ALB: Yes AO YFT: Yes AO BET: Yes NAO SWO: Yes SAO SWO: Yes	NAO ALB: Yes SAO ALB: Yes AO YFT: Yes AO BET: Yes NAO SWO: Yes SAO SWO: Yes	NAO ALB: Yes SAO ALB: Yes AO YFT: Yes AO BET: Yes NAO SWO: Yes SAO SWO: No

Rationale

NAO ALB

The stock assessment of NAO ALB uses MPB and integrates nominal catch data with abundance indices of five fisheries. The trajectories of spawning biomass and 95% CIs (confidence intervals) in relation to the estimated biomass show that the stock status is expressed in a probabilistic way (ICCAT, 2023). Uncertainty also has been considered in the assessment via an MSE framework, which aims to develop relevant HCRs for the target species (ICCAT, 2023). **SG100 is met**.

SAO ALB

In the 2020 assessment the Committee selected a base case to best represent the population dynamics of albacore and uncertainty around stock status as well as impact of alternative fishing scenarios. The wide confidence intervals reflect the large uncertainty around the estimates of stock status.

The assessment results were reported in a probabilistic way, including probabilities of achieving objectives based on different management scenarios (ICCAT, 2023). **SG100 is met**.

AO YFT

A full stock assessment for AO YFT was conducted in 2019, which applied two production models (JABBA, MPB) and one age-structured model (Stock Synthesis) to consider different hypotheses. The assessment group considered uncertainty in stock population dynamics (ICCAT, 2019) and explored uncertainties in growth, age-slicing, mortality, index selection and data weighting via sensitivity analyses used in

projections (Medley & Gascoigne, 2024). However, the fact that results from all three models were combined and equally weighted within and between model types suggests a need to identify the most appropriate model type in a probabilistic way. **SG80 is met**.

AO BET

The latest stock assessment of AO BET consists of three models (SS, JABBA, and MPB) (SCRS 2021). The maximum age assumption and its associated estimates of natural mortality do have the greatest influence on the estimated stock status. The assessment further recommends an additional work of AOTTP tagging data to reduce the uncertainty of survival/natural mortality estimates.

SCRS (2021) shows probabilistic way stock status relative reference points (B/B_{MSY} and F/F_{MSY}) evaluation (ICCAT, 2021). **SG100 is met**.

NAO SWO

Swordfish Year program (SWOYP) is one of the most ambitious projects in ICCAT, including help reducing uncertainty in stock assessment and MSE models. The ICCAT swordfish biology programme (SWOYP) has concluded several key uncertainties in the result assessment: stock boundaries and mixing; growth and ageing; and reproduction and maturity.

The Group recommends as high priority to continue biological studies on swordfish. An ICCAT project on swordfish biology, genetics and satellite tagging started in 2018 and the Group recommends that the project continues for 2024 and is provided with financial support. The ICCAT Report 2022-2023 demonstrates stock status relative to reference points are evaluating in a probabilistic way. **SG100 is met**.

SAO SWO

Two different assessment models (SS and JABBA) were used. The assessment also mentions uncertainties including the mortality of unreported dead and post release mortality of live discards, quota carryovers, and so forth.

The Committee emphasises the importance of these uncertainties and recommends that the stock be closely monitored in the upcoming years to confirm rebuilding. **SG80 is met**.

d	Evaluation of assessment			
	Guide post			The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.

	Met?			NAO ALB: Yes SAO ALB: No AO YFT: Yes AO BET: No NAO SWO: Yes SAO SWO: No

Rationale

NAO ALB

Several model formulations with varying complexity were used to model different hypotheses and characterise the uncertainty around the stock status in 2013.

In 2023, the SCRS has simplified the assessment to the use of SS and MPB. SCRS (2023) evaluated the performance of the MP adopted in Recommendation 21-04 for a robustness grid of OM conditioned using the new natural mortality vector (ICCAT, 2023). The MP applied to the robustness OMs resulted in a higher probability of being in the green quadrant of the Kobe plot. **SG100 is met**.

SAO ALB

The 2016 SAO ALB stock assessment used catch, effort, and size data collected up to 2014 and considered a variety of models as in the previous assessment. Alternative hypotheses and assessment approaches have not been rigorously explored, despite the result of the assessment has been deemed robust. No MSE has been conducted and yet confidence intervals are very wide. There are recommendations to continue work on developing improved statistical models. Whilst the Commission will continue funding electronic tagging and reproductive biology studies in the North and South Atlantic to improve MSE accordingly, **SG100 is not met** at this stage.

AO YFT

The 2019 AO YFT assessment used three different models and considered previous stock assessment outcomes, alternative recruitment relationships, and likely hypotheses regarding steepness. Also, the SCRS tried to consider the uncertainties in various modelling. Sensitivity runs also conducted by the SCRS. Given the wide test of various models and application of a series of uncertainties mitigation measures, the assessment should be robust and relevant assessment approaches have been rigorously explored. **SG100 is met**.

AO BET

The SCRS (2021) indicates the assessment result is derived from three model including SS, JABBA, and MPB, as in 2018. Different model formulations considered to be plausible representations of the stock

dynamics were used to characterise stock status and the uncertainties in stock status evaluations (ICCAT, 2021).However, it is not yet known if alternative hypotheses were rigorously explored, such as the alternative CPUE standardisation, and it is recommended by the Tropical Tunas Species Group. **SG100 is not met**.

NAO SWO

Stock Synthesis, JABBA, ASPIC, and SPiCT were presented in SCRS 2022 for NAO SWO. The model settings included selectivity form, sex-specific, age structured assessment, maturity, steepness assumption and so on, which were similar to 2017 Stock Assessment.

The model appeared to be stable, the 2022 JABBA is referenced according to 2017 BSP2 model. **SG100 is met**.

SAO SWO

ICCAT uses Stock Synthesis and JABBA to run the 2022 SAO SWO stock assessment, the models encompass CPUEs from respective countries, steepness, and selectivity form.

The model is considered stable and robust, however, the Stock synthesis models for SAO SWO are still under development, it may need to be re-evaluated once the models are comprehensively constructed. **SG100 is not met**.

e	Peer review of assessment			
	Guide post		The assessment of stock status is subject to peer review.	The assessment has been **internally and externally** peer reviewed.
	Met?		NAO ALB: Yes SAO ALB: Yes AO YFT: Yes AO BET: Yes NAO SWO: Yes SAO SWO: Yes	NAO ALB: No SAO ALB: No AO YFT: Yes AO BET: No NAO SWO: No SAO SWO: No

Rationale

NAO ALB

Internal review is regularly conducted by SCRS annually. SCRS has been contracted with independent experts to complete peer review of MSE code since 2018 and addressed recommendations from the reviewer since 2019. In 2022, SCRS has initiated independent peer review of MSE process. **SG80 is met**.

There is no evidence that the stock assessment was externally reviewed, so **SG100 is not met**.

SAO ALB

The SCRS conducts regular stock assessment review to understand how the stock modelling is able to reflect the stock status, current HCRs and conservation effect. This process is common for most main catch tuna species in ICCAT (Medley & Gascoigne, 2024) **SG80 is met**.. However, we have not identified evidence of external peer review of the stock assessment so **SG100 is not met**.

AO YFT

The SCRS conducts regular stock assessment review to understand how well the stock modelling is able to reflect the stock status and impacts of the current HCRs and conservation measures. This process is common for most economically important tuna species under ICCAT's jurisdiction including AO YFT. Some CPCs also reviewed the stock assessment report independently, indicating external peer review does exist. **SG100 is met**.

AO BET

The SCRS regularly conducts internal review for the Atlantic bigeye stock assessment models and outcomes and provides feedback on ways to improve the stock assessment (ICCAT, 2021). **SG80 is met**.

As for external review, the proposal for 2021 BET stock assessment was withdrawn as no expert had been nominated prior to the start of the assessment. **SG100 is not met**.

NAO SWO

SCRS has initiated independent peer review of MSE code since 2021 and review of MSE process since 2022. External peer review has not yet been applied to SWO, only **SG80 is met**.

SAO SWO

The SCRS regularly conducts internal review for the Atlantic bigeye stock assessment models and outcomes and provides feedback on ways to improve the stock assessment. **SG80 is met**.

However, it is not clear if the Commission will initiate external review in the future. **SG100 is not met**.

Overall Performance Indicator (PI) Rationale	
Draft scoring range	**Total: ≥ 80**

	NAO ALB: ≥ 80 SAO ALB: ≥ 80 AO YFT: ≥ 80 AO BET: ≥ 80 NAO SWO: ≥ 80 SAO SWO: ≥ 80
Information gap indicator	Information sufficient to score PI

4.4 Principle 2

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

Primary species (MSC Component 2.1):

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

Secondary species (MSC Component 2.2):

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

ETP species (MSC Component 2.3):

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

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

- The catch comprises 5% or more by weight of the total catch of all species by the Unit of Assessment.

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

4.4.1 Principle 2 background

This is a distant water longline fishery consisted of Namibian and Chinese flagged vessels. The fleet targets albacore tuna, bigeye tuna, yellowfin tuna, and swordfish, across north and south Atlantic Ocean (Table 6).

Table 6: UoA flag states / EEZs signatory to international legislation or respective National legislation related to ETP designation. (Blank fields represent information sourcing gaps.)

Country	UoA Flag state	UoA EEZ	ICCAT Membership	CITES Party?	CMS Party?	National legislation relevant to ETP	Details &/or species listed
China	Yes	NA	Member	Accession	Non-party		
Namibia	Yes	NA	Member	Accession	Non-party	• Nature Conservation Ordinance; • Nature Conservation Amendment Act	Not reviewed
Senegal (landing port)	No	NA	Member	Accession	Party	• Hunting and Wildlife Protection Code	All species listed under CITES and CMS, including sharks and rays.

ICCAT manages species covering tunas, billfishes, and sharks. Stocks are periodically reviewed by ICCAT through publications of Recommendations, SCRSs, assessment reports and so forth.

Principle 2 species

Some fishery-specific information from the fishery was obtained ahead of the pre-assessment process and identified the typical bycatch species associated with the vessels in the fleet. The following table (Table 7) uses the data provided to estimate the contribution of these bycatch species to total catch composition and therefore to consider the categorisation of the species as per MSC Fisheries Standard v2.01. The data derives from the fishery logbook sources and is not considered to be "third-party". Therefore, the list of species described in Table 7 is not considered to be exhaustive.

Bait data was provided by the client and can be found in Table 8. The bait species have been considered in the Primary and Secondary performance indicators based on their percentage contribution to total fishery catch.

In lieu of fishery-specific observer data, estimates of the fishery's bycatch composition were made from similar longline fisheries in the Atlantic Ocean that also target the same species (DiNardo, et al., 2022; Jones, et al., 2024). Details of these can be found in Table 9.

Table 7: Principle 2 species and designations across all Atlantic Ocean UoAs and respective rationales for consideration (blue shading primary, green shading secondary; bold text main, orange shading ETP)

Common name	Scientific name	% observed	Category	Justification*
North Atlantic Albacore tuna	*Thunnus alalunga*	0	Primary Main UoA	Managed, > 5%
South Atlantic Albacore tuna	*Thunnus alalunga*	0	Primary Main UoA	Managed, < 5%
Bigeye tuna	*Thunnus obesus*	0	Primary Main UoA	Managed, > 5%
Yellowfin tuna	*Thunnus albacares*	0	Primary Main UoA	Managed, > 5%
North Atlantic Swordfish	*Xiphias gladius*	0	Primary Main UoA	Managed, < 5%
South Atlantic Swordfish	*Xiphias gladius*	0	Primary Main UoA	Managed, < 5%
Japan sardine	*Sardinops sagax*	0	Primary Main	Managed, > 5%

Skipjack tuna	*Katsuwonus pelamis*	0	Primary Minor	Managed, < 5%
Blue shark	*Prionace glauca*	0	Primary Minor	Managed, < 5%
Indonesian milkfish	*Chanos chanos*	0	Secondary Main	Not managed, > 5%
Taiwan/Chub mackerel	*Scomber japonicus*	0	Secondary Main	Not managed, > 5%
Marlins, sailfishes, etc. nei	Istiophoridae spp.	0	Secondary Minor	Not managed, < 5%
Shortbill spearfish	*Tetrapturus angustirostris*	0	Secondary Minor	Not managed, < 5%
Argentine shortfin squid	*Illex argentinus*	0	Secondary Minor	Not managed, < 5%
Other fishes	*Teleostei*	0	Secondary Minor	Not managed, > 5%

*Justification has been made using estimated total catch composition information. However, this has not yet been confirmed by observer data.

Table 8: Bait species and fishery source for the YSH Atlantic Ocean longline tuna and swordfish fishery. The data obtained was from the current year (2024)

Vessel name	Mass of catch (T)				
	Argentine shortfin squid (*Illex argentinus*)	Indonesian milkfish (*Chanos chanos*)	Chub mackerel (*Scomber japonicus*)	Taiwan (Pacific) saury (*Cololabis saira*)	Japan sardine (*Sardinops sagax*)
Fu Yuan Yu 7852	10	32.5	62.5	10	10
Fu Yuan Yu 7853	10	32.5	62.5	10	10

Fu Yuan Yu 7855	10	32.5	62.5	10	10
Fu Yuan Yu 7856	10	32.5	62.5	10	10
Fu Yuan Yu 7857	10	32.5	62.5	10	10
Fu Yuan Yu 7858	10	32.5	62.5	10	10
Fu Yuan Yu 7859	10	32.5	62.5	10	10
Shang Fu		12.5	32.5		35
Nata 2		12.5	32.5		35
Total	**70**	**252.5**	**502.5**	**70**	**140**

Table 9: Estimated bycatch associated with the YSH Atlantic Ocean longline tuna and swordfish fishery using verified observer data from similar fisheries that have passed MSC assessment. Source: (DiNardo, et al., 2022; Jones, et al., 2024)

Common name	Scientific name	MSC designation	Justification
Pelagic stingray	*Dasyatis violacea*	Secondary	N/a
Bluefin tuna	*Thunnus thynnus*	Secondary	N/a
Blackfin tuna	*Thunnus atlanticus*	Secondary	N/a
Atlantic sharp-nose shark	*Rhizoprionodon terraenovae*	Secondary	N/a
Billfishes	*Billfishes*	Secondary	N/a
White marlin	*Tetrapturus albidus*	Secondary	N/a
Striped marlin	*Tetrapturus audax*	Secondary	N/a
Escolar	*Lepidocybium flavobrunneum*	Secondary	N/a

Oil fish	*Ruvettus pretiosus*	Secondary	N/a
Blue marlin	*Makaira nigricans*	Secondary	N/a
Wahoo	*Acanthocybium solandri*	Secondary	N/a
Mahi-mahi	*Coryphaena hippurus*	Secondary	N/a
Lancetfish	*Alepisaurus spp*	Secondary	N/a
Pomfrets	*Stromateidae*	Secondary	N/a
Opah	*Lampris guttatus*	Secondary	N/a
Roundscale Spearfish	*Tetrapturus georgei*	Secondary	N/a
Mobulid rays	*Mobulid rays*	Secondary	N/a
Atlantic sailfish	*Istiophorus albicans*	Secondary	N/a
Longbill spearfish	*Tetrapturus pfluegeri*	Secondary	N/a
Tiger shark	*Galeocerdo cuvier*	Secondary	N/a
Silky shark	*Carcharhinus falciformis*	ETP	ICCAT Recommendation 11-08; CMS Appendix II; CITES Appendix II: IUCN Red List (VU)
Shortfin mako* * Northern Stock is ETP	*Isurus oxyrinchus*	ETP	ICCAT Recommendation 21-09; CMS Appendix II; CITES Appendix II: IUCN Red List (EN)
Scalloped hammerhead	*Sphyrna lewini*	ETP	ICCAT Recommendation 10-08; CMS Appendix II; CITES Appendix II: IUCN Red List (VU)
Hammerhead	*Sphyrna spp*	ETP	ICCAT Recommendation 10-08; CMS Appendix II; CITES Appendix II: IUCN Red List (VU)

Thresher shark	*Alopias spp*	ETP	ICCAT Recommendations 09-07; CMS Appendix II; CITES Appendix II; IUCN Red List (VU)
Oceanic whitetip shark	*Carcharhinus longimanus*	ETP	ICCAT Recommendations 10-07; CMS Appendix I; CITES Appendix II; IUCN Red List (CE)
Smooth hammerhead	*Sphyrna zygaena*	ETP	ICCAT Recommendation 10-08; CMS Appendix II; CITES Appendix II: IUCN Red List (VU)
Great hammerhead	*Sphyrna mokarran*	ETP	ICCAT Recommendation 10-08; CMS Appendix II; CITES Appendix II: IUCN Red List (VU)
Bigeye thresher	*Alopias superciliosus*	ETP	ICCAT Recommendations 09-07; CMS Appendix II; CITES Appendix II; IUCN Red List (VU)
Requiem sharks	*Carcharhinidae*	ETP	ICCAT Recommendations 10-07; CMS Appendix I; CITES Appendix II; IUCN Red List (CE)
Longfin mako	*Isurus paucus*	ETP	ICCAT Recommendation 21-09; CMS Appendix II; CITES Appendix II: IUCN Red List (EN)
Mako sharks	*Isurus spp*	ETP	ICCAT Recommendation 21-09; CMS Appendix II; CITES Appendix II: IUCN Red List (EN)
Giant Manta ray	*Mobula birostris*	ETP	CMS Appendix II; CITES Appendix II; IUCN Red List (EN)
Mobulid ray	*Mobula* spp.	ETP	CMS Appendix II; CITES Appendix II; IUCN Red List (EN)
Leatherback turtle	*Dermochelys coriacea*	ETP	CMS Appendix I; CITES Appendix I; IUCN Red List (VU)

Loggerhead turtle	*Caretta caretta*	ETP	CMS Appendix I; CITES Appendix I; IUCN Red List (EN)
Marine turtles	*Chelonidae* spp.	ETP	CMS Appendix I; CITES Appendix I;
Olive Ridley turtle	*Lepidochelys olivacea*	ETP	CMS Appendix I; CITES Appendix I; IUCN Red List (EN)
Melon-headed whale	*Peponocephala electra*	ETP	Least Concern on IUCN Red List
Wandering albatross	*Diomedea exulans*	ETP	CMS Appendix II; ACAP Annex I; IUCN Red List (VU)
Black-browed albatross	*Thalassarche melanophris*	ETP	CMS Appendix II; ACAP Annex I; IUCN Red List (LC)
Atlantic, yellow-nosed albatross	*Thalassarche chlororhynchos*	ETP	CMS Appendix II; ACAP Annex I; IUCN Red List (EN)
Sooty albatross	*Phoebetria fusca*	ETP	CMS Appendix II; ACAP Annex I; IUCN Red List (EN)
White-chinned petrel	*Procellaria aequinoctialis*	ETP	CMS Appendix II; ACAP Annex I; IUCN Red List (VU)
Spectacled petrel	*Procellaria conspicillata*	ETP	CMS Appendix II; ACAP Annex I; IUCN Red List (VU)

Primary species

Primary species (MSC Component 2.1) are any species in the catch that are not covered under Principle 1 (P1), that are within the scope of the MSC program, i.e. no amphibians, reptiles, birds, or mammals and have management tools and measures in place, intended to achieve stock management objectives reflected in either limit (LRP) or target reference points (TRP). Primary species can therefore also be referred to as managed species.

Using the details of the logbooks provided by the fishery client, a short list of primary species has been obtained. These include the juveniles of the target species (north and south Atlantic albacore, yellowfin, and bigeye tuna, and north and south Atlantic swordfish). The juveniles from these species are known to inhabit the same environments as the adults and are therefore at risk of capture by longline fisheries due to the

unselective nature of the operations. As the stock status and management of the target species has already been described in Principle 1, it will not be further addressed here.

Other primary species caught by the fishery are anticipated to be skipjack tuna (*Katsuwonus pelamis*), blue shark (*Prionace glauca*), and one of the main bait species; Japanese sardine (*Sardinops sagax*).

There are five main bait species used and sourced by the fishery under pre-assessment, and subsequently, these are required to be considered in this pre-assessment process. Details of the type and mass of species caught are found in *Justification has been made using estimated total catch composition information. However, this has not yet been confirmed by observer data.

Table 8.

Skipjack tuna

Skipjack tuna are also found in similar environments as the target species and were recorded in the fisher logbooks as part of the bycatch. Therefore, due to the management of ICCAT, these were considered primary species. Current stock status for ICCAT skipjack tuna is favourable. The 2022 assessment provided quantitative estimates of management reference points and projections of stock status for both skipjack stocks. This recent assessment for the eastern Atlantic skipjack stock incorporated fishery data from 1950 to 2020, and the indices of relative abundance were calculated up to 2020.

The combined assessment results, based on the median of the entire uncertainty grid, indicate that in 2020 the 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). The median MSY was estimated at 216,617 t from the deterministic runs' uncertainty grid. The probabilities of the stock being in each quadrant of the Kobe plot are 78% in the green (not overfished, not subject to overfishing) (Figure 16).

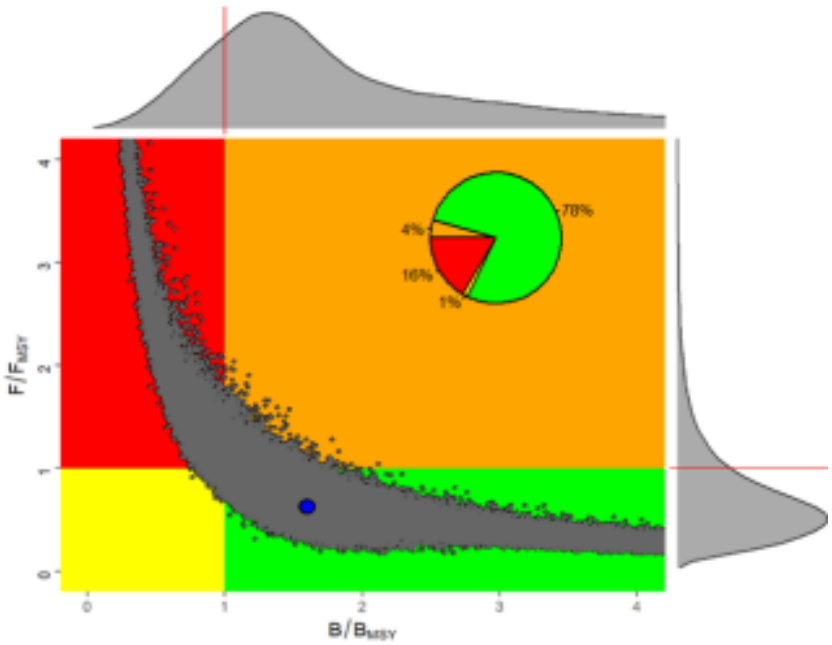

Figure 16: Kobe plot for the 2022 stock assessment conducted on skipjack tuna by ICCAT. Source: (ICCAT, 2022)

ICCAT Recommendation 19-02 aimed to reduce juvenile bigeye and yellowfin tuna mortality by prohibiting purse seine and bait boat fishing for these species, including skipjack, associated with FADs during specific periods in 2020 and 2021.

Blue shark

Blue shark are managed in the ICCAT Convention Area as two separate management units – North and South Atlantic blue shark, which are separated at 5°N, similar to albacore tuna. The most recent stock assessment for North and South Atlantic blue shark (2023).

For the South Atlantic stock, the combined results from the two stock assessment models (SS3 and JABBA) estimated that B_{2021} was above B_{MSY} (B_{2021}/B_{MSY} = 1.29 [0.89-1.81 95% CI]). It was noted the median trajectories of B/B_{MSY} showed that the stock has not been below B_{MSY} level during the entire time period considered in the present assessment for both models. Assuming a PRI of 0.5 B_{MSY} (proxy based on FCR Guidance clause GSA 2.2.3.1), it is highly likely that South Atlantic stock is above the PRI based on the results of the 2023 assessment (Figure 17).

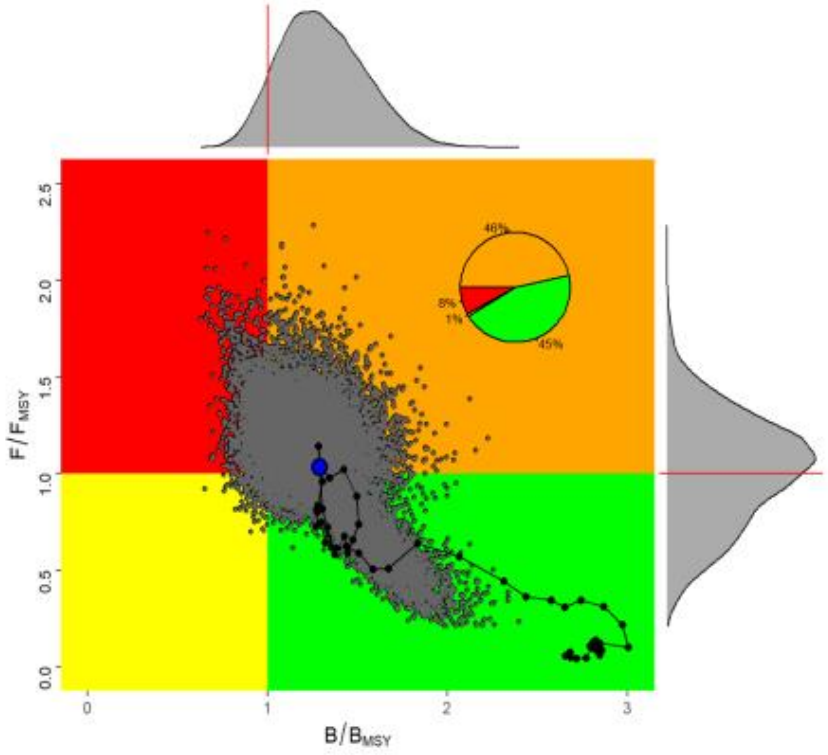

Figure 17: Kobe plot for the 2022 stock assessment conducted on south Atlantic blue shark by ICCAT. Source: (ICCAT, 2023)

For north Atlantic blue shark, based on the combined results from both models the stock biomass was above B_{MSY} (B_{2021}/B_{MSY} = 1.00 – 95% CI of 0.75-1.31) and F_{2021} was lower than F_{MSY} (F_{2021}/F_{MSY} = 0.70 – 95% CI of 0.50 to 0.93). The combined results indicate that the stock is at the MSY level and is not experiencing overfishing. It is therefore highly likely that the stock is above the PRI (assumed to be $0.5B_{MSY}$ based on GSA2.2.3.1).

The assessment estimated that overfishing is not occurring and that the stock is not overfished. Likewise, the results estimated that the stock is in the green quadrant of the Kobe plot (Figure 18).

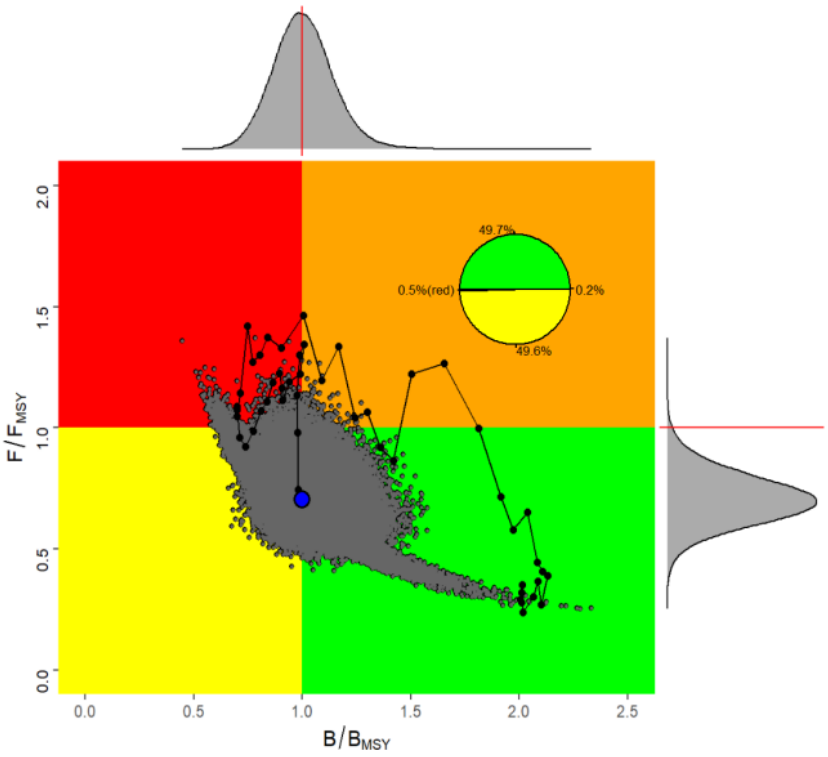

Figure 18: Kobe plot for the 2022 stock assessment conducted on north Atlantic blue shark by ICCAT. Source: (ICCAT, 2023)

Japanese sardine

Japanese fisheries harvest of sardine are assessed annually by the Fisheries Research and Education Agency of Japan (FRA) and is managed through a Total Allowable Catch (TAC), termed allowable biological catches (ABCs).

The latest assessment conducted for the Pacific stock was in 2022 (FRA, 2022), the catch in 2021 was 627,000 t, which was an increase from 622,000 t (FRA, 2022). It is noted in the recent assessment that as the stock has increased and migration ranges expanded catches by foreign fleets from China and Russia, increased to 237,000 t and 256,000 t respectively in 2021. It is evident that in many early years, fishing mortality (F) exceeded F_{MSY} which is the point at which SSB_{MSY} is achieved, but since 2012 decreased to around F_{MSY} resulting in the SSB increasing and exceeding SSB_{MSY} since 2018 (SB_{2021}/SB_{MSY} = 1.86). This provides confidence that the stock is highly likely to be above biologically based limits. However, there have been recent increases in fishing mortality since 2019 such that fishing mortality now exceeds F_{MSY} (F_{2021}/F_{MSY} = 1.62). Nevertheless, projections indicate a 96% probability that the stock will exceed the target reference point (TRP) by 2031 if fishing mortality is set at 1.2 until 2023 (with catches around 922,000 t in 2023) and then remains from 2024 around 0.85 F_{MSY} (FRA, 2022). However, the population dynamics of this stock, particularly recruitment, are strongly linked to oceanographic variables, which fluctuate on decadal timescales, making long-term management complex (FRA, 2022) (Figure 19).

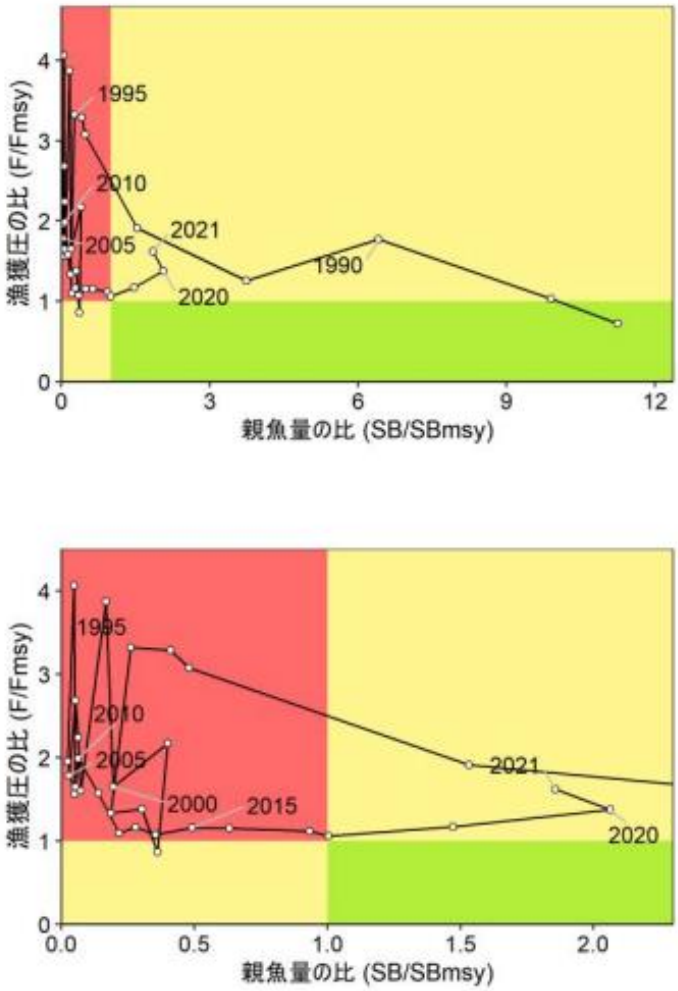

Figure 19: Kobe plot for the 2022 stock assessment conducted on Japan sardine by the FRA. Source: (FRA, 2022)

Secondary species

Due to the lack of third-party observer data available for this fishery at this stage of the pre-assessment, estimates on the types of bycatch must be made to ensure that the fishery is assessed using the precautionary approach. Therefore, similar fisheries, operating in the same jurisdiction and targeting the same or similar species, and using the same fishing gears have been identified and their MSC assessment reports have been used here to represent the types of species associated with the YSH Atlantic Ocean longline tuna and swordfish fishery bycatch. More details about the estimated bycatch species and their MSC designation can be found in Table 9.

ETP species

As recorded in Table 9, ETP species thought to be interacted with by this fishery consist of a range of elasmobranchs, including silky, oceanic whitetips, threshers, hammerheads, and mobulid rays; turtles, including leatherback, loggerhead, and olive Ridley; seabirds, including albatross and petrels; and marine mammals including melon-headed whales. Whilst this may not be exhaustive of the exact ETP species that

this fishery interacts with, it is a good estimation and sufficient to provide a precautionary score for the fishery in PI 2.3.1, 2.3.2, and 2.3.3.

The fishery supplied two policies related to ETP species interacted with within the fishery operations; the Policy Prohibiting Shark Finning, and the Shark and Turtle Conservation Policy. Both of which outlined specific measures to which the Chinese-flagged vessels must adhere in order to mitigate bycatch and reduce post-release mortality.

The fishery under assessment also has a Policy Prohibiting Shark Finning that extends to all Chinese-flagged vessels under the management. The Policy stipulates that the fishery:

1. Does not actively target sharks
2. Prohibits the practice of shark finning
3. Promotes the safe release of sharks that are caught alive
4. Retains the carcass of all sharks that are landed with fins naturally attached
5. Records shark species in fishing logbooks for all that are landed onboard.

The fishery also has a Shark and Sea Turtle Conservation Policy implemented throughout the fishery management which includes a list of best practices that the vessels must adhere to, including:

1. Does not actively target sharks
2. Does not set shark lines on buoys
3. Prohibits the use of wire traces
4. Prohibits the practice of shark finning and out policy is posted on the vessel for crew awareness
5. Do not retain oceanic whitetip or silky sharks
6. For other sharks that are landed, the carcass is retained with fins naturally attached or partially cut and tied to the shark
7. Record the species in the fishing logbook for all sharks and sea turtles that are landed
8. Use wide circle hooks
9. Use only monofilament lines
10. Use fish rather than squid for bait
11. When feasible, set hooks deeper than typical sea turtle-abundant depths (40-100m)
12. Do not engage in trading with fishing companies that do not observe the above practices
13. Promotes best practices for bycatch handling and release of sharks, turtles, cetaceans and birds and the fishery does everything possible to release these individuals alive

There are no fishery-specific management measures in place for the other ETP species specifically. However, the ICCAT Recommendations also apply fully across the fishery's management as both China and Namibia are cooperating parties to the convention CPCs. A list of relevant Recommendations made by ICCAT on the ETP species thought to be associated with this fishery can be found below in Table 10.

Table 10: Recommendations made by ICCAT on the ETP species thought to be associated with this fishery. Source: (ICCAT, 2024)

ICCAT Recommendation	Title
23-13	Supplemental Recommendation by ICCAT amending Recommendation 22-12 on the bycatch of sea turtles caught in association with ICCAT fisheries
22-12	Recommendation by ICCAT on the bycatch of sea turtles caught in association with ICCAT fisheries (combine, streamline and amend Recommendations 10-09 and 13-11)
22-11	Recommendation by ICCAT on the conservation of the south Atlantic stock of shortfin mako caught in association with ICCAT fisheries
21-09	Recommendation by ICCAT on the conservation of north Atlantic stock of shortfin mako caught in association with ICCAT fisheries
19-11	Recommendation by ICCAT on abandoned, lost, or otherwise discarded fishing gear
18-06	Recommendation by ICCAT amending Recommendation 16-13 on improvement of compliance review of conservation and management measures regarding sharks caught in association with ICCAT fisheries.
11-10	Recommendation by ICCAT on information collection and harmonisation of data on bycatch and discards in ICCAT fisheries
11-09	Supplemental Recommendation by ICCAT on reducing incidental bycatch of seabirds in ICCAT longline fisheries
11-08	Recommendation by ICCAT on the conservation of silky sharks caught in association with ICCAT fisheries

10-08	Recommendation by ICCAT on hammerhead sharks (family Sphyrnidae) caught in association with fisheries managed by ICCAT
10-07	Recommendation by ICCAT on oceanic whitetip shark caught in association with fisheries managed by ICCAT
09-07	Recommendation by ICCAT on thresher sharks caught in association with fisheries managed by ICCAT
07-07	Recommendation by ICCAT on reducing incidental bycatch of seabirds in longline fisheries

Habitats

All of the UoAs fishing operations in the Atlantic Ocean occur in pelagic waters. Interactions with benthic features, at a scale where irreversible impacts on habitat types becomes a risk, are only likely to occur when longlines are dragged across the seabed. This is extremely unlikely in the case of this fishery given the gear is not expected to contact with any substrata (seafloor, seamount, corals, etc.), they do not have any impact on any physical habitat during operations and the areas of operation are remote from land masses. As such, the water column (epipelagic zone) is the only habitat to be considered potentially impacted. The pelagic habitat does not have any of the characteristics of VMEs outlined in GSA3.13.3.2 with regard to uniqueness or rarity, functional significance, fragility, life history traits of the component species, or structural complexity.

The issue of unobserved mortality due to ghost fishing caused by discarded or lost fishing gear (monofilament line and hooks) needs to be considered. Lost pelagic longline gear is only likely to continue to fish as long as bait remains on the hooks. Bait tends to be stripped relatively quickly off the hooks and as such, the ghost fishing mortality rate associated to lost longlines is usually low.

Ecosystem

The impacts of the fishery on primary and secondary species, bycatch, ETP species, as well as habitat components are all considered in other sections. The ecosystem component considers the broad ecological community and ecosystem in which the fishery operates and addresses system-wide issues, primarily impacted indirectly by the fishery, including ecosystem structure, trophic relationships and biodiversity. In the context of this fishery, the assessment is focused on the pelagic ecosystem of the tropical and temperate Atlantic Ocean, as the ecosystem under consideration.

The most serious risk to ecosystem structure and function that can result from the operation of industrial scale fisheries are potentially large changes in food-web dynamics related to the removal of significant

proportions of key predator species. Therefore, to assess the ecosystem component, the assessment team considered the ecosystem-level impacts of the UoAs fishery itself; i.e., any ecosystem impacts caused by the removal by the UoAs of north and south Atlantic albacore, yellowfin, and bigeye tuna, and north and south Atlantic swordfish (the main species caught by the UoAs).

4.4.2 Principle 2 Performance Indicator scores and rationales

PI 2.1.1 – Primary species outcome

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

		Japanese sardine (Tsushima): No	Japanese sardine (Tsushima): No	Japanese sardine (Tsushima): No

Rationale

Potential main Primary species include:

- North Atlantic albacore
- South Atlantic albacore
- Bigeye tuna
- Yellowfin tuna
- North Atlantic swordfish
- South Atlantic swordfish
- Japanese sardine (Kuroshio and Tsushima stock) (Bait species)

The north and south Atlantic albacore tuna, bigeye tuna, yellowfin tuna, and north and south Atlantic swordfish are the target species of this fishery and are considered in Principle 1.

The specific details of the stock status of the aforementioned target species can be found in PI 1.1.1 above but a summary will be provided below.

NAO and SAO ALB, YFT, NAO SWO and SAO SWO

The latest stock assessment conducted by ICCAT on these stocks indicated that these stocks are not overfished, and overfishing are not occurring and are highly likely to be above the PRI. **SG80 is met**.

AO BET

The ICCAT SCRS 2021 shows a more pessimistic stock status than 2018 assessment. The ratio of F/F_{MSY} in 2019 was estimated at 1.00 (range: 0.63-1.35) and the ratio of spawning biomass B/B_{MSY} in 2019 was estimated at 0.94 (range: 0.71-1.37). This level is above the point where recruitment would be impaired and indicates the stock of AO BET is in an overfished status (“Yellow” quadrant in Kobe plot) (ICCAT, 2021). Only **SG60 is met**.

Japanese sardine

According to the fleet manager, the sourced Japanese sardine is being supplied from Japan. The species is made up of two stocks – Kuroshio and Tsushima.

The stocks are managed by the Fisheries Research and Education Agency of Japan (FRA) through the evaluation of TAC annually. Cohort analysis is used in the stock assessments to evaluate biomasses at age and spawning stock biomass (SSB). TRPs for two stocks are set at MSY (1,187,000 t for Kuroshio and 1,093,000 t for Tsushima). Reference points are set at 60% MSY.

The latest (2022) stock assessment for the Kuroshio stock indicates the total catch in 2021 was 627,000 t, slightly increase from 622,000 t in 2020 (FRA 2022a). the Kobe plot shows that the stock is under overfishing but not overfished (B_{2021}/B_{MSY} = 1.86 and F_{2021}/F_{MSY} = 1.62). the stock is highly likely to be above PRI, **SG80 is met**. However, uncertainties such as recruitment and oceanographic variables may lead the SSB will fluctuate around a level consistent with MSY and the TRP. **SG100 is not met.**

The latest (2022) stock assessment for the Tsushima stock shows the catch in 2021 was estimated 55,000 t, which was an obvious decrease from 73,000 t in 2020 (FRA, 2022b). The biomass has been lower than B_{MSY} since 1994 (B_{2021}/B_{MSY} = 0.25); fishing mortality has declined significantly recently (F_{2021}/F_{MSY} = 0.65). the stock is not likely to be above PRI, **SG60 is not met.**

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

Rationale

SKJ

The results of the stock assessment models developed in 2022 show that the values of the posterior distribution mean for the B_{2020}/B_{MSY} can be in the range of 0.5 to 5.79 for the different model scenarios/approaches and the F_{2020}/F_{MSY} can be from 0.18 to 2.35. Even, in the light of the clear uncertainties in the assessments, it is very likely that the Eastern Atlantic Skipjack stock is not overfished, nor does overfishing take place. The 95% lower confidence interval of the last biomass estimate is just at

PRI level, considering the PRI is half of B_{MSY}, but in previous years the lower bounds were clearly above such level. Therefore, there is a high degree of certainty that the stock is above PRI, **SG100 is met**. The Kobe Plots for the two Atlantic Ocean stocks (west and east) can be found in Figure 16.

BSH

A stock assessment was conducted on blue shark in 2023 using length-based age-structured models: Stock Syntheses (SS) with data from 1971 to 2022, and JABBA analysis. The trajectories and estimates of F/F_{MSY} and B/B_{MSY} were similar between the models, and the credibility interval of the JABBA reference case fully covered the confidence interval of the Stock Synthesis reference case in the entire period.

South Atlantic

The stock assessment estimated that B_{2021} was above B_{MSY} (B_{2021}/B_{MSY} = 1.29 [0.89-1.81 95% CI]). It was noted the median trajectories of B/B_{MSY} showed that the stock has not been below B_{MSY} level during the entire time period considered in the present assessment for both models. It was estimated that F_{2021} was higher than F_{MSY} (F_{2021}/F_{MSY} = 1.03 [0.45-1.55 95% CI]) based on the results from both models. It was noted that the JABBA estimate for 2021 was below F_{MSY}, whereas the SS3 estimate was above F_{MSY}.

The assessment estimated that overfishing is not occurring and that the stock is not overfished. Likewise, the results estimated that the stock is in the green quadrant of the Kobe plot (Figure 17). Therefore, **SG100 is met**.

North Atlantic

Based on the combined results from both models the stock biomass was above B_{MSY} (B_{2021}/B_{MSY} = 1.00 – 95% CI of 0.75-1.31) and F_{2021} was lower than F_{MSY} (F_{2021}/F_{MSY} = 0.70 – 95% CI of 0.50 to 0.93). The combined results indicate that the stock is at the MSY level and is not experiencing overfishing. It is therefore highly likely that the stock is above the PRI (assumed to be $0.5B_{MSY}$ based on GSA2.2.3.1).

The assessment estimated that overfishing is not occurring and that the stock is not overfished. Likewise, the results estimated that the stock is in the green quadrant of the Kobe plot (Figure 18). Therefore, **SG100 is met**.

Overall Performance Indicator (PI) Rationale

Draft scoring range	**Total: <60** NAO ALB: 100 SAO ALB: ≥ 80

	AO YFT: ≥ 80 AO BET: 60-79 NAO SWO: ≥ 80 SAO SWO: ≥ 80 Japanese sardine (Kuroshio): ≥ 80 Japanese sardine (Tsushumi): <60 SKJ: SG100 SAO BSH: SG100 NAO BSH: SG100
Information gap indicator	**Information sufficient to score PI**
Data-deficient? (Risk-Based Framework needed)	**No**

PI 2.1.2 – Primary species management strategy

PI 2.1.2		There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are **measures** in place for the UoA, if necessary, that are expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are likely to be above the PRI.	There is a **partial strategy** in place for the UoA, if necessary, that is expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are highly likely to be above the PRI.	There is a **strategy** in place for the UoA for managing main and minor primary species.
	Met?	NAO ALB: Yes SAO ALB: Yes AO YFT: Yes AO BET: Yes NAO SWO: Yes SAO SWO: Yes Japanese sardine (both stocks): Yes	NAO ALB: Yes SAO ALB: Yes AO YFT: Yes AO BET: No NAO SWO: Yes SAO SWO: No Japanese sardine (both stocks): Yes	**Main species** NAO ALB: Yes SAO ALB: No AO YFT: Yes AO BET: No NAO SWO: No SAO SWO: No Japanese sardine (both stocks): Yes **Minor species** SKJ: No BSH: No
Rationale				

The management measures for the same species that are also target species has already been discussed in PI and will not be repeated here to avoid repetition. However, a summary of the findings will be listed below for ease of access.

NAO ALB and SAO ALB

Recommendations 21-04 and 23-05 provides a Management Procedure (MP) (including an HCR) to support the management objectives for north Atlantic albacore. The North Atlantic albacore stock assessment shall be conducted every three years, with the next stock assessment to occur in 2026. This is reviewed regularly and adaptive to the state of the stock as demonstrated by the amendment to TAC from the 21-04 version to the 23-05 version. **SG100 is met**.

The south Atlantic albacore stock status is healthy (ICCAT, 2023), it appears that the harvest strategy elements are responsive to the state of the stock and work together towards achieving sustainable management objectives. **SG80 is met**. A designed fishery management strategy tailored to the SAO ALB has not existed yet, **SG100 is not met**.

AO YFT

For yellowfin tuna, there are measures in place aiming to prevent the spawning biomass decreasing toward the PRI. ICCAT adopted catch limits (TACs) under ICCAT Recommendation 22-01 (and predecessor 21-01) to limit catches to 110,000 t for yellowfin tuna. If total catch exceeds this amount, then ICCAT may consider additional management measures for yellowfin tuna and shall review in 2023 options for a revised TAC, closures or allocated catch limits. There are no limit or target reference points set for this stock and a harvest strategy has not been adopted yet. However, these Recommendations covering the UoA vessels (which are updated regularly), together with regular stock assessments carried out by ICCAT, constitute a partial strategy to manage the UoA impact on yellowfin tuna, **SG80 is met.**

AO BET

Currently, Atlantic bigeye tuna is mainly managed through TAC and controls on fishing capacity, seasonal closures in specific areas, and restrictions on FAD usage by purse seine vessels to conserve small sized tuna (ISSF 2024). The estimate of MSY was 86,800 tonnes (range: 72,200 to 106,400 tonnes). MSY has been reduced considerably through harvest of small bigeye. Current catches (62,500 tonnes) are below the MSY, but above the adopted catch limit (62,000 tonnes). Therefore, as the TAC has been repeatedly exceeded, the evidence suggests that it is not working. **SG60 is met.** However, whilst there are measures in place for AO BET stocks, this is not considered a “partial strategy”. Therefore, **SG80 is not met**.

NAO SWO and SAO SWO

A TAC was first adopted by ICCAT in 2018 for northern SWO (Rec. 17-02). The recent stock assessment for northern SWO further shows that the management measure has been effective as the stock is

fluctuating around MSY. Neither MSY nor TAC were breached in recent years. Rec. 22-03 maintains TAC at 13,200 t for northern stock, with allocation plan towards CPCs. **SG80 is met**.

Southern stock has adopted a TAC 10,000 for the years 2023 – 2026 (Rec. 22-04), with allocation plan towards CPCs. The latest stock assessment also indicates the management measures are considered as effective as the stock is above the PRI. Further, it appears that the measures are responsive to the state of the stock as evidenced by the updated TAC. As this is considered to be a "measure", it is not sufficient to meet the "partial strategy" requirements of the SI. Therefore, only **SG60 is met.**

Japanese sardine (both stocks)

According to the fleet manager, the sourced Japanese sardine is being supplied from Japan. The species is made up of two stocks – Kuroshio and Tsushima.

The stocks are managed by the Fisheries Research and Education Agency of Japan (FRA) through the evaluation of TAC annually. A harvest strategy is in place for the stocks to manage these stocks to a TRP of SSB_{MSY} with LRPs set at 60% of MSY. This LRP was the estimated SSB level below which recruitment is thought to be poor. Furthermore, if the SSB is below a reference point set at 10% of MSY a fishing moratorium or other measures to ensure similar effect are imposed. Annual projections are undertaken to determine the probability of being near the TRP based on alternative levels of fishing mortality. The assessment team considered there was in place a strategy (annual stock assessment with harvest control rules), with an understanding of how it works to achieve an outcome, and which is designed to manage the impact on that component specifically, such that **SG80 is met** for both stocks.

Minor species

SKJ

SG100 is not met due to the absence of a harvest strategy, management procedure and/or limit or target reference points set for this stock. No specific regulations in place to manage SKJ in ICCAT. The relevant measures are mostly focusing on limiting purse seiners' fishing capacity to keep the stock fluctuating around MSY (ICCAT, 2022).

BSH

In the absence of a formal harvest strategy, management procedure and/or limit or target reference points set for both southern and northern Atlantic Ocean stocks, coupled with catches that have exceeded the latest recommendation, the assessment team considered the measures in place **cannot meet SG100**.

b	Management strategy evaluation

	Guide post	The measures are considered **likely** to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).	There is some **objective basis for confidence** that the measures/partial strategy will work, based on some information directly about the fishery and/or species involved.	**Testing** supports **high confidence** that the partial strategy/strategy will work, based on information directly about the fishery and/or species involved.
	Met?	**Main species:** NAO ALB: Yes SAO ALB: Yes AO YFT: Yes AO BET: Yes NAO SWO: Yes SAO SWO: Yes Japanese sardine: Yes **Minor species:** Yes (default)	**Main species:** NAO ALB: Yes SAO ALB: Yes AO YFT: Yes AO BET: No NAO SWO: Yes SAO SWO: No Japanese sardine: No **Minor species:** Yes (default)	**Main species:** NAO ALB: No SAO ALB: No AO YFT: Yes AO BET: No NAO SWO: No SAO SWO: No Japanese sardine: No **Minor species: No** SKJ: No NAO BSH: No SAO BSH: No

Rationale

Main species

<u>AO ALB</u>

North Atlantic

North Atlantic albacore stocks are all measured above B_{MSY} and fishing mortality for the species are found below F_{MSY}, evidence suggests that the robust/partial harvest strategies are achieving its objectives – fluctuating around and below MSY. Thus, based on similar fisheries, these measures in place are considered likely to work and **SG80 is met.**

South Atlantic

Since the stock is above B_{MSY} and fishing mortality is below F_{MSY}, evidence suggests that the harvest strategy is achieving its objectives. A formal TAC is established, and allocations of catch has been determined by the Commission (Rec. 22-06). **SG80 is met.**

AO YFT

Since the stock is above B_{MSY} and fishing mortality is below F_{MSY}, indicating that the stock is not overfished or experiencing overfishing. This indicates that the strategy is likely to work and is achieving its objectives. The fact that the stock has remained near B_{MSY} in recent years is evidence that the harvest strategy is achieving its objectives currently, despite recent overages on the TAC that may jeopardise its ability to continue to do so. **SG80 is met**.

AO BET

The AO BET stock is experiencing overfishing (ICCAT, 2021). This indicates the current harvest strategies may not be adequate to maintain the stock at the MSY level. ICCAT is currently applying a constant TAC, fishing capacity controls via limits on the numbers of authorised vessels, and specific regional and seasonal closures to conserve small sized bigeye. Based on model projections in SCRS 2021, it estimated that a future constant catch of 62,000 t will have a 97% probability of maintaining the stock in the green quadrant of the Kobe plot by 2034. Therefore, the strategy is thought “likely to work”. **SG60 is met**.

Current catches (62,500 tonnes) are below the MSY, but above the adopted catch limit (62,000 tonnes). Therefore, as the TAC has been repeatedly exceeded, the evidence suggests that it is not working. **SG80 is not met**.

SWO

North Atlantic

As with the south Atlantic stocks of swordfish, there are management measures available for this stock and recent stock assessments suggest that the measures are effective. **SG60 is met**. The plan reduced TACs until signs of stock recovery were observed by the SCRS. Subsequent catches and stock assessments indicated that the TACs were respected, and the stock recovered to target levels. This is direct evidence of the harvest strategy in action, based on prior experience. Thus, **SG80 are met**.

South Atlantic

Stock projections were carried out in the 2022 assessment using the JABBA model for South Atlantic swordfish to the year 2033 under a series of constant catch scenarios (0 t and 6,000 to 15,000 t). Under current catch levels, the South Atlantic swordfish stock has a 55% probability of being in the green quadrant of the Kobe plot by 2033.

At this stage, the HS is achieving its objectives to presently maintaining the Status of the Stock in relation an agreed biological reference point (PRI for B/B_{MSY} ratio ≥ 0.5), and there is a >50% probability that the stock will reach the MSY by 2033. Therefore, **SG60 is met**.

As the new TAC entered into implementation in 2024, there is currently insufficient data to evidence that the strategy is achieving its objectives. **SG80 is not met**.

Japanese sardine

Available information suggests that the Japanese Pacific stock is currently above PRI, but the Japanese Tsushima stock is below the PRI (FRA, 2022). Projections undertaken indicate that for the Pacific and Tsushima stocks respectively, there is a 96% and 60% probability of the stock remaining at and rebuilding to the TRP by 2031 if fishing mortality does not exceed 0.85 F_{MSY} from 2023 for the Pacific stock and 0.80 F_{MSY} from 2021 to 2023 and 0.75 F_{MSY} after 2024 for the Tsushima stock (FRA, 2022). For the Pacific stock, fishing mortality has exceeded F_{MSY} since 2019 as catches from foreign fleets (Russia and China) have increased (FRA, 2022). There is currently little reliable data about the total catch from the fishery, therefore, it is not yet possible to provide an accurate figure for the percentage composition to total catch. However, based on similar fisheries reports, the measures are considered likely to work. **SG60 is met**.

Minor species

All minor species meet SG60 and SG80 by default.

SKJ

Catches over the last few years have exceeded the TAC (2016 to 2020), with a decline to 110,602 t in 2021. However, Projections indicate that the strategy is likely to work, and evidence exists through current stock status that management is achieving its objectives. Through the use of tuna tagging data, the multiple time-area fishing closures implemented to protect both juvenile bigeye and yellowfin tuna reduced the relative risk for both yellowfin and skipjack tuna but not for bigeye tuna. This was measured as a factor of assessing whether individuals tagged within the closed area stayed within the closed area during the moratorium period or not. This provides an objective basis for confidence that the strategy (at UoA level) will work. However, due to the TAC being exceeded in recent years (with no further management measures put in place by ICCAT) there is not a high level of confidence that the strategy in place will achieve the desired outcome for the stock. **SG100 is not met**.

NAO BSH

The TAC of North BSH is maintained 39,102 t since 2019 and it corresponded to average catch from 2011 – 2015. The latest tack assessment in 2023 shows B_{2021}/B_{MSY} = 1.00, with 95% confidence interval: 0.75-1.31) and is not experiencing overfishing (F_{2021}/F_{MSY} = 0.70 with a 95% confidence interval: 0.50-0.93). The Kobe phase plot indicates that there is a 49.6% probability that the stock currently falls within the yellow

quadrant of the Kobe plot, a 49.7% probability that the stock falls within the green, and less than a 1% chance that it is in the red or orange quadrants.

While reported and estimated catches for blue shark are still generally subject to higher levels of uncertainty than the major tuna stocks, they have been considered sufficiently complete for the purpose of stock assessment. **SG100 is not met**.

SAO BSH

The 2015 Blue Shark Stock Assessment uses an annual TAC of 28,923 t. there is no modification about TAC in Rec. 21-11. However, the reported catch has been exceeding TAC since 2018.

The SAO BSH in 2021 was not overfished (B_{2021}/B_{MSY} = 1.29, with 95% confidence interval: 0.89-1.81) but is undergoing overfishing (F_{2021}/F_{MSY} = 1.03 with 95% confidence interval: 0.45 – 1.55).

Same as the northern stock, while reported and estimated catches for blue shark are still generally subject to higher levels of uncertainty than the major tuna stocks, they have been considered sufficiently complete for the purpose of stock assessment. **SG100 is not met.**

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

Rationale

Evidence for implementation of the partial strategies/strategies for all primary species includes VMS and observer data, landings data (port sampling), logbooks, bait volumes purchased, and the MCS system are presented to ICCAT as mandatory requirements of the CPCs, and are further described under Principle 3. However, considering that the current level of information available from the fishery is minimal, and there is zero evidence of observer data, there is therefore no evidence that the measures/partial strategy is being implemented successfully for this fishery. **SG80 cannot be met**.

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

Rationale

As described in Table 9, blue sharks are anticipated to be caught by this fishery as a primary “minor” species.

ICCAT Recommendation 04-10 requires that CPCs take measures to ensure fishers fully utilise any retained catches of sharks and that a 5% shark fin: carcass ratio is demonstrated for retained sharks. There is also a prohibition on vessels from retaining on board, transhipping, landing or trading any shark fins and fisheries not directed at sharks should have in place measure to encourage live release of sharks caught incidentally and are not used for food/subsistence. Additionally, ICCAT Recommendation 18-06 requires comprehensive reporting by CPCs on their implementation of ICCAT shark measures, while ICCAT Recommendations 19-07 and 19-08 establish conservation measures and reporting requirements specific to north and south Atlantic blue sharks caught by ICCAT fisheries, including the setting of annual TACs and catch limits (See PI 2.1.2a).

The fishery under assessment has demonstrated two policies in place for the Chinese-flagged vessels that include: the Policy Prohibiting Shark Finning, and the Shark and Turtle Conservation Policy. Both policies apply to all vessels and include requirements that there must be no shark finning onboard the vessels. Further, the policies state that any sharks landed must have “fins naturally attached”. Whilst there is no specific shark finning policy currently available for the Namibian-flagged vessels, all vessels are under the requirements of the aforementioned ICCAT Recommendations to prevent shark finning. Therefore, it is deemed “likely” that shark finning is not taking place. **SG60 is met**. However, without specific observer data to evidence that this act is not occurring, the assessment team cannot state that it is “highly likely” that shark finning is not occurring. **SG80 cannot be met**.

e	Review of alternative measures			
	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-	There is a **regular** review of the potential effectiveness and practicality of alternative measures to minimise UoA-	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimise UoA-

		related mortality of unwanted catch of main primary species.	related mortality of unwanted catch of main primary species and they are implemented as appropriate.	related mortality of unwanted catch of all primary species, and they are implemented, as appropriate.
	Met?	**Main species:** N/a **Minor species:** Yes (default)	**Main species:** N/a **Minor species:** Yes (default)	**Main species:** N/a **Minor species:** No

Rationale

Unwanted catch is defined under MSC GSA 3.1.6 as including: “that part of the catch that has been thrown away or slipped where the components of that catch may not survive after release”.

The main primary species associated with this fishery are all target species, except for the Japanese sardine, which is bait. However, as the Japanese sardine is also the target species for bait, these are not considered necessary to score these SIs. Therefore, default is met for main species.

According to the fleet manager, this fishery discards SKJ, BSH, and other billfishes except for sailfish and striped marlin, due to business preference and catch limits. The discard of UoA happens occasionally due to size regulation in SWO and they do not want to retain juvenile tunas, however, no further information about discard rate and fate is available.

ICCAT does not have any Recommendations in place aiming to improve the survivability of unwanted catch. Rec. 17-02 and 17-03 specifies that CPCs should introduce measures to prohibit landing SWO weighting less than 25 kg, or 125 cm lower jaw fork length. however, it is not clear that if such policy will also reduce SWO mortality.

Similar situation applies to blue shark as well. However, instead of prohibiting the catch of species lower than a certain weight or length, ICCAT provisions detailed fishing information including retained and discarded individual and size data. The Commission also encourages CPCs to conduct biological research to collect biological/ecological parameters, life-history, migrations, post-release survivorship and behavioural traits of blue sharks.

The Chinese-flagged vessels in the fleet have a Policy Prohibiting Shark Finning, and Shark and Turtle Conservation Policy, both of which include measures required to minimise shark bycatch and prevent shark finning. The Policy stipulates that all vessels shall only use circle hooks and monofilament line to reduce shark bycatch and shall not use “shark lines” at any time or wire trace. ICCAT also requires that longline vessels prohibit the use of shark lines and wire trace, requirements to use monofilament line and circle hooks.

However, as minor species are only considered in SG100, and there is no biennial review of the effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of all primary species, **SG100 is not met**.

Overall Performance Indicator (PI) Rationale	
Draft scoring range	**Total: 60-79** NAO ALB: 60-79 SAO ALB: 60-79 BET: 60-79 YFT: 60-79 NAO SWO: 60-79 SAO SWO: 60-79 Japanese sardine: 60-79 Skipjack tuna: 60-79 Blue shark: 60-79
Information gap indicator	**More information sought to score PI**

PI 2.1.3 – Primary species information

PI 2.1.3		Information on the nature and extent of primary species is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage primary species		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impact on main primary species			
	Guide post	Qualitative information is **adequate to estimate** the impact of the UoA on the main primary species with respect to status. **OR** **If RBF is used to score PI 2.1.1 for the UoA:** Qualitative information is adequate to estimate productivity and susceptibility attributes for main primary species.	Some quantitative information is available and is **adequate to assess** the impact of the UoA on the main primary species with respect to status. **OR** **If RBF is used to score PI 2.1.1 for the UoA:** Some quantitative information is adequate to assess productivity and susceptibility attributes for main primary species.	Quantitative information is available and is **adequate to assess with a high degree of certainty** the impact of the UoA on main primary species with respect to status.
	Met?	Yes	No	No

Rationale

The assessment team has been able to estimate the primary species caught by the fishery under assessment, using MSC reports from similar fisheries that operate in the same jurisdiction, with the same gears and targeting the same species. There are some bait purchase records provided, and summaries of average amounts used by vessels in the UoA fleet in 2024 as the client owns the fleet since 2024. This is sufficient to **meet SG60**.

Some quantitative information is available and is adequate to assess the impact of the fishery on the status of all main primary tuna and minor stocks through logbooks provided from a few trips made in 2024. However, the logbooks provided by the client shows significant insufficiency to fulfil analysis standards, including discarded amount, fate, miss reporting of bycatch species, etc. The fishery does not have

human/electronic observer equipped, which reduces the ability for the assessment team to evaluate the extent to which independent, third-party data is recorded for this fishery. **SG80 is not met**.

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

Rationale

Some quantitative information about minor primary species is presented through logbooks. However, **SG 100 is not met** due to large portion of undetermined catch - other unidentified species occupies 27.57%.

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

Rationale

Whilst the fishery does collect logbook data, at this stage of the pre-assessment, this has only been available for review of the 2024 period, and no historical datasets have been provided. Main primary species are largely estimated to be the juveniles of the target species. Therefore, technically there is sufficient information to support the measures to manage these species.

However, as ICCAT requires all CPCs to present data on the catch records, VMS and other information related to stock status to conduct the stock assessments and verify compliance with Recommendations, the evidence is considered adequate to support the measures to manage main primary species. Therefore, **SG60 is met**.

However, without confirmation via observer data, of which there is zero for this fishery, it cannot be definitively stated that information is adequate to support a partial strategy to manage main primary species. **SG80 is not met.**

References

FRA, 2022. *Stock assessment of the Pacific stock of Japanese anchovy in 2022,* s.l.: Japan Fisheries Research and Education Agency (FRA).

Overall Performance Indicator (PI) Rationale	
Draft scoring range	**60-79**
Information gap indicator	**More information sought to score PI**

PI 2.2.1 – Secondary species outcome

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

		Chub mackerel: Yes (RBF triggered)	Chub mackerel: Yes (RBF triggered)	

Rationale

Whilst observer data is currently unavailable for this fishery, as well as temporal logbook data paucity, defining secondary species as main or minor is challenging. However, using estimates from similar fisheries that operate in the same jurisdiction, using the same gears, and targeting the same species, like the Consolidated Atlantic Ocean albacore tuna longline fishery (Jones, et al., 2024) and Tri Marine Atlantic albacore (*Thunnus alalunga*) longline fishery (DiNardo, et al., 2022), the assessment team is confident that these data will most likely be reflected in the fishery under assessment. These similar fisheries noted that there were zero main secondary species identified in their observer data reports.

Bait

The fishery has provided details and data on the bait sourcing for the vessels within the fleet. the bait sourced include Argentine shortfin squid (*Ilex argentinus*), chub mackerel (*Scomber japonicus*), Pacific saury (*Cololabis saira*), Indonesian milkfish (*Chanos chanos*), and Japanese sardine (*Sardinops sagax*). As Japanese sardine is the only species that is managed, this is the only bait species considered as “primary species”. At this stage of the pre-assessment, the data sources available are unreliable and lacking in temporal information. Therefore, it is currently unclear how much the bait species contribute to total catch composition of the fishery. However, using the precautionary approach, two of the remaining bait species are considered to be secondary main: Indonesian milkfish, and chub mackerel. Only Indonesian milkfish is considered to be managed as this species is sourced from a fish farm. However, there is no current management strategy for Pacific saury and thus, the Risk-Based Framework (RBF) has been triggered (see Appendix).

The details of the PSA can be found in the Appendix but a summary will be provided here:

Pacific saury (*Cololabis saira*)

There are no stock assessments available for this species, however, both the productivity and susceptibility assessments that took place via the PSA determined that the stock would pass MSC assessment (**SG80**)

b	Minor secondary species stock status			
	Guide post			Minor secondary species are highly likely to be above biologically based limits.

				OR If below biologically based limits', there is evidence that the UoA does not hinder the recovery and rebuilding of secondary species
	Met?			Argentine shortfin squid: No (RBF triggered) Pacific saury: No (RBF triggered) Other secondary: No

Rationale

Although fishery-dependent and fishery-independent (observer) data is currently insufficient to identify and assess specific secondary species, the assessment team has referred to other similar MSC fishery assessments such as the Public Certification Report for the Consolidated Atlantic Ocean albacore tuna longline fishery (Jones, et al., 2024) and MSC PCR Tri Marine Atlantic albacore (*Thunnus alalunga*) longline fishery (DiNardo, et al., 2022). The current assessment has collated the lists of bycatch species from the two MSC assessment reports and the details of these can be found in Table 9. The minor secondary species described from the observer and fisher logbooks from these reports include a range of other tuna species, billfish, and sharks.

As for the remaining bait species, Argentine shortfin squid and Pacific saury both do not meet SG100 at this stage as there is no stock assessment available for these species.

In order to harmonise with the other fisheries, and due to the large extent estimated secondary minor species, it has been decided that **SG100 cannot be met at this stage**,

References

DiNardo, G., Bodsworth, A. & Ahlers, B., 2022. Tri Marine Atlantic albacore (Thunnus alalunga) longline *fishery,* Emeryville: SCS Global Services.

FishBase, 2023. *FishBase: Cololabis saira.* [Online] Available at: https://www.fishbase.se/summary/Cololabis-saira.html [Accessed 27 November 2023].

Fishbase, 2024b. *Fishbase: Scomber japonicus.* [Online] Available at: https://fishbase.se/summary/Scomber-japonicus.html [Accessed 22 October 2024].

Fishbase, 2024. *Fishbase: Chanos chanos.* [Online] Available at: https://fishbase.se/summary/Chanos-chanos.html [Accessed 22 October 2024].

FishSource, 2024. *FishSource: Argentine shortfin squid.* [Online] Available at: https://www.fishsource.org/stock_page/1626 [Accessed 22 October 2024].

FishSource, 2024. *FishSource: Pacific chub mackerel NW Pacific.* [Online] Available at: https://www.fishsource.org/stock_page/759 [Accessed 22 October 2024].

Jones, H., Scarcella, G., Emery, T. & des Clers, S., 2024. *Consolidated Atlantic Ocean albacore tuna longline fishery,* Lymington: Control Union UK.

Oceana, 2023. *Oceana: Marine Life Encyclopaedia: cephalopods, crustaceans, and other shellfish.* [Online]
Available at: https://oceana.org/marine-life/argentine-shortfin-squid/#:~:text=Like%20many%20squids%2C%20Argentine%20shortfin,%2C%20reproduce%20once%2C%20and%20die.
[Accessed 27 November 2023].

Patadjai, R. S., 2001. *The technology for milkfish hatchery in Indonesia,* s.l.: Aquaculture Department, Southeast Asian Fisheries Centre.

Sea Around Us, 2016. *Sea Around Us: Marine trophic index: Argentine shortfin squid (Illex argentinus).* [Online]
Available at: http://www.seaaroundus.org/data/#/taxa/690023
[Accessed 27 November 2023].

Seafood Watch, 2020. *Monterey Bay Aquarium Seafood Watch: Argentine shortfin squid,* s.l.: Scandinavian Fishing Yearbook.

Overall Performance Indicator (PI) Rationale	
Draft scoring range	**Total:** ≥ 80 Indonesian milkfish: ≥ 80

	Pacific saury: ≥ 80 Minor species N/a
Information gap indicator	**More information sought to score PI**
Data-deficient? (Risk-Based Framework needed)	Yes – see Appendix

PI 2.2.2 – Secondary species management strategy

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

Rationale

Main species

Only the bait species - Indonesian milkfish, and Pacific saury - are considered as main secondary species in this pre-assessment. Only Indonesian milkfish are considered to be managed as this stock is harvested through fish farms. Therefore, **SG100 is met** for Indonesian milkfish. However, the extent to which the other secondary main species stock is managed and the risks to the stock remains unknown. Therefore, **SG60 cannot be met**.

Minor species

Fishery-dependent and fishery-independent (observer) data is currently insufficient to identify and assess specific secondary species, therefore, the assessment team has referred to other similar MSC fishery

assessments such as the Public Certification Report for the Consolidated Atlantic Ocean albacore tuna longline fishery (Jones, et al., 2024) and MSC PCR Tri Marine Atlantic albacore (*Thunnus alalunga*) longline fishery (DiNardo, et al., 2022) to estimate the secondary species that may feature in this fishery's bycatch reports. It is noted in these reports that the "all or nothing" approach has been applied, and due to lacking management measures for some of the secondary species, **SG100 cannot be met.**

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

Rationale

Main species

Only the bait species - Indonesian milkfish, and Pacific saury - are considered as main secondary species in this pre-assessment. Only Indonesian milkfish are considered to be managed as this stock is harvested through fish farms. Therefore, **SG80 is met** for Indonesian milkfish. However, the extent to which the other secondary main species stock is managed and the risks to the stock remains unknown. Therefore, **SG60 cannot be met**.

Minor species

Fishery-dependent and fishery-independent (observer) data is currently insufficient to identify and assess specific secondary species, therefore, the assessment team has referred to other similar MSC fishery assessments such as the Public Certification Report for the Consolidated Atlantic Ocean albacore tuna longline fishery (Jones, et al., 2024) and MSC PCR Tri Marine Atlantic albacore (*Thunnus alalunga*) longline fishery (DiNardo, et al., 2022) to estimate the secondary species that may feature in this fishery's

bycatch reports. It is noted in these reports that the “all or nothing” approach has been applied, and due to lacking management measures for some of the secondary species, **SG100 cannot be met.**

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

Rationale

Main species

Only the bait species - Indonesian milkfish, and Pacific saury - are considered as main secondary species in this pre-assessment. Only Indonesian milkfish are considered to be managed as this stock is harvested through fish farms. Therefore, **SG80 is met** for Indonesian milkfish. However, the extent to which the other secondary main species stock is managed and the risks to the stock remains unknown. Therefore, **SG60 cannot be met**.

Minor species

Fishery-dependent and fishery-independent (observer) data is currently insufficient to identify and assess specific secondary species, therefore, the assessment team has referred to other similar MSC fishery assessments such as the Public Certification Report for the Consolidated Atlantic Ocean albacore tuna longline fishery (Jones, et al., 2024) and MSC PCR Tri Marine Atlantic albacore (*Thunnus alalunga*) longline fishery (DiNardo, et al., 2022) to estimate the secondary species that may feature in this fishery’s bycatch reports. It is noted in these reports that the “all or nothing” approach has been applied, and due to lacking management measures for some of the secondary species, **SG100 cannot be met.**

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

Rationale According to the aforementioned MSC PCRs, the possible secondary minor shark species may include crocodile shark, kitefin shark, winghead shark, tiger shark and velvet dogfish. Therefore, there is the possibility that shark finning could occur onboard the vessels.

The ICCAT has implemented various management Recommendations and Resolutions that address shark finning in the ICCAT area of jurisdiction. For instance, Rec. 6-23 concerning the conservation of sharks caught in association with fisheries managed by ICCAT encompasses the following measures:

- CPCs shall prohibit the removal of shark fins at sea and require that all sharks be landed with their fins naturally attached (fully or partially) through the point of first landing of the shark.
- CPCs shall prohibit vessels from retaining on board, transshipping, or landing shark fins harvested in contravention of this Recommendation.
- In fisheries that are not directed at sharks, CPCs shall encourage the release of live sharks unharmed, to the extent practicable, that are caught incidentally and are not used for food and/or subsistence.
- CPCs shall, where possible, undertake research to identify ways to make fishing gear more selective for the protection of sharks and provide relevant information on these efforts to the SCRS.
- The Commission shall consider appropriate assistance to developing CPCs for the collection of data on their shark catches.

Rec. 04-10 prohibits shark finning activity, including retaining fins onboard and discarding carcass, transshipping, landing or trading any shark fins. Fisheries that are not targeting sharks should be encouraged to release sharks caught alive. It is also emphasised in Rec. 18-06 that CPCs should fulfil comprehensive reporting of sharks according to the ICCAT shark measures.

The fishery under assessment has demonstrated two policies in place for the Chinese-flagged vessels that include: the Policy Prohibiting Shark Finning, and the Shark and Turtle Conservation Policy. Both policies apply to all vessels and include requirements that there must be no shark finning onboard the vessels. Further, the policies state that any sharks landed must have “fins naturally attached”. Whilst there is no specific shark finning policy currently available for the Namibian-flagged vessels, all vessels are under the requirements of the aforementioned ICCAT Recommendations to prevent shark finning. Therefore, it is deemed “likely” that shark finning is not taking place. **SG60 is met**. However, without specific observer

data to evidence that this act is not occurring, the assessment team cannot state that it is “highly likely” that shark finning is not occurring. **SG80 cannot be met**.

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

Rationale

Main species

As secondary main species in this fishery are bait species, there is no unwanted catch. Quantity of bait is purchased based on bait efficacy, quality, and price. The company’s strategy to consider other available resources when the resources stock status is low contributes to a sustainable sourcing policy.

Minor species

Third-party, fishery-independent verification (observer data) is required to determine the discard rate of each secondary minor species. However, the assessment team has referred to other similar MSC fishery assessments such as the Public Certification Report for the Consolidated Atlantic Ocean albacore tuna longline fishery (Jones, et al., 2024) and MSC PCR Tri Marine Atlantic albacore (*Thunnus alalunga*) longline fishery (DiNardo, et al., 2022) to estimate the secondary species that may feature in this fishery’s bycatch reports.

As there is no biennial review of the effectiveness and feasibility of alternative measures to minimise UoA-related mortality and considering the lack of fishery-specific independent data about discard rate of unwanted catch in secondary minor species. **SG 100 is not met**.

References

DiNardo, G., Bodsworth, A. & Ahlers, B., 2022. Tri Marine Atlantic albacore (Thunnus alalunga) longline *fishery,* Emeryville: SCS Global Services.

Jones, H., Scarcella, G., Emery, T. & des Clers, S., 2024. *Consolidated Atlantic Ocean albacore tuna longline fishery,* Lymington: Control Union UK.

Overall Performance Indicator (PI) Rationale	
raft scoring range	**Total: <60** **Main species** **Indonesian milkfish:** ≥ 80 **Pacific saury: < 60** **Minor species** ≥ 80 (default)
Information gap indicator	**More information sought to score PI**

PI 2.2.3 – Secondary species information

PI 2.2.3		Information on the nature and amount of secondary species taken is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage secondary species		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impacts on main secondary species			
	Guide post	Qualitative information is **adequate to estimate** the impact of the UoA on the main secondary species with respect to status. OR **If RBF is used to score PI 2.2.1 for the UoA:** Qualitative information is adequate to estimate productivity and susceptibility attributes for main secondary species.	Some quantitative information is available and **adequate to assess** the impact of the UoA on main secondary species with respect to status. OR **If RBF is used to score PI 2.2.1 for the UoA:** Some quantitative information is adequate to assess productivity and susceptibility attributes for main secondary species.	Quantitative information is available and **adequate to assess with a high degree of certainty** the impact of the UoA on main secondary species with respect to status.
	Met?	**Main species** Indonesian milkfish: Yes Pacific saury: Yes	**Main species** Indonesian milkfish: Yes Pacific saury: Yes	**Main species** Indonesian milkfish: No Pacific saury: No

Rationale

Main species

The two main secondary species, Indonesian milkfish, and Pacific saury. PI2.2.1 was scored using the RBF and details of the Productivity-susceptibility analysis (PSA) can be found in the Appendix.

The qualitative and quantitative information used to complete the RBF is deemed to be adequate to estimate productivity and susceptibility attributes for these species. Therefore, **SG80 is met**.

However, as there is zero third-party observer data reports available for this fishery at this time, there is no quantitative data from the fishery that could help it meet SG80. Therefore, **SG100 has not been met**.

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

Rationale

PI 2.2.1b mentions the secondary minor species in the other similar fisheries. However, this fishery **does not meet SG100** as the data is insufficient to confirm catch composition to the level of detail to confidently assign secondary species and no observer data available. Using other similar MSC fishery assessments such as the Public Certification Report for the Consolidated Atlantic Ocean albacore tuna longline fishery (Jones, et al., 2024) and MSC PCR Tri Marine Atlantic albacore (*Thunnus alalunga*) longline fishery (DiNardo, et al., 2022) to estimate the secondary species that may feature in this fishery's bycatch reports means that there is no fishery-specific quantitative data to meet SG100. Therefore, **SG100 is not met**.

c	Information adequacy for management strategy			
	Guide post	Information is adequate to support **measures** to manage **main** secondary species.	Information is adequate to support a **partial strategy** to manage **main** secondary species.	Information is adequate to support a **strategy** to manage **all** secondary species, and **evaluate** with a **high degree of certainty** whether the strategy is **achieving its objective**.
	Met?	**Main species** Indonesian milkfish: No	**Main species** Indonesian milkfish: No	**Main species** Indonesian milkfish: No

		Pacific saury: No **Minor species:** Yes (default)	Pacific saury: No **Minor species:** Yes (default)	Pacific saury: No **Minor species:** No

Rationale

Main species

Both bait species are not currently managed and assessed. Furthermore, it is not confirmed if any missing secondary main species due to the absence of observer data and external review.

As no partial strategies and measures for bait species and the absence of observer data, **SG60 is not met**.

Minor species

As the current minor secondary species considered in this assessment are estimates derived from similar fisheries, there is inadequate fishery-specific information that supports any management strategy for all secondary species. Therefore, **SG100 cannot be met.**

This PI will be reassessed once observer coverage and logbook data are available to conduct further assessment.

References

DiNardo, G., Bodsworth, A. & Ahlers, B., 2022. Tri Marine Atlantic albacore (Thunnus alalunga) longline *fishery,* Emeryville: SCS Global Services.

Jones, H., Scarcella, G., Emery, T. & des Clers, S., 2024. *Consolidated Atlantic Ocean albacore tuna longline fishery,* Lymington: Control Union UK.

Overall Performance Indicator (PI) Rationale	
Draft scoring range	**<60** **Main species** **Indonesian milkfish: <60** **Pacific saury: <60** **Minor species**: ≥ 80 (default)
Information gap indicator	**More information sought to score PI**

PI 2.3.1 – ETP species outcome

PI 2.3.1		The UoA meets national and international requirements for the protection of ETP species The UoA does not hinder recovery of ETP species		
Scoring Issue		SG 60	SG 80	SG 100
a	Effects of the UoA on population/stock within national or international limits, where applicable			
	Guide post	Where national and/or international requirements set limits for ETP species, the **effects of the UoA** on the population/ stock are known and **likely** to be within these limits.	Where national and/or international requirements set limits for ETP species, the **combined effects of the MSC UoAs** on the population /stock are known and **highly likely** to be within these limits.	Where national and/or international requirements set limits for ETP species, there is a **high degree of certainty** that the **combined effects of the MSC UoAs** are within these limits.
	Met?	**Shortfin mako shark (N) -** Yes	**Shortfin mako shark (N) -** No	**Shortfin mako shark (N) -** No

Rationale

Third-party, fishery-independent verification (observer data) is required to determine the discard rate of each ETP species. The fishery under pre-assessment has not been able to provide verified, third-party observer data for this analysis. Therefore, the assessment team has referred to other similar MSC fishery assessments such as the Public Certification Report for the Consolidated Atlantic Ocean albacore tuna longline fishery (Jones, et al., 2024) and MSC PCR Tri Marine Atlantic albacore (*Thunnus alalunga*) longline fishery (DiNardo, et al., 2022) to estimate the ETP species that may feature in this fishery's bycatch reports.

The main ETP species listed in the aforementioned reports are listed in (Table 9) and consist of the following groups, elasmobranchs, turtles, cetaceans, and seabirds.

The only ETP species that has specific regulation about national/international limits set is NAO shortfin mako. The species is regulated in ICCAT Rec. 21-09.

Shortfin mako, according to ICCAT Manual, is estimated maximum 500 cm in total length. It is also a highly migratory oceanic and epipelagic species distributed throughout tropical and subtropical ocean between 60ºN and 50ºS. Preferably, shortfin mako inhabits temperate waters range between 17 and 27ºC (Rosa, et al., 2018).

The stock assessment for NAO shortfin mako was assessed in 2019, with the results of nine stock assessment model runs and provided stock status and management advice. The summary table of NAO shortfin mako indicates that stock abundance in 2015 is lower than B_{MSY} (B_{2015}/B_{MSY} = 0.57 – 0.95); fishing mortality in 2015 is significantly higher than F_{MSY} (F_{2015}/F_{MSY} = 1.93 – 4.38). The combined data summarises a 90% of probability that there is a serious overfished state and experiencing overfishing.

Since 2004, ICCAT has been working on re-evaluating shortfin mako stock status (ICCAT Rec. 04-10). The Rec. 10-06 demanded CPCs to report Task I data for shortfin mako and imposed ban on retaining this species if not following. SCRS should conduct stock assessment to assess if a) the annual catch levels of shortfin mako that would support MSY and b) there are additional conservation measures for this species. Not until 2021, did ICCAT officially demands a comprehensive plan for the recovery of the North Atlantic shortfin mako shark population. CPCs are asked to jointly terminate overfishing status starting in 2022 and steadily rebuild biomass level to achieve MSY by 2070 with a probability of a range of between 60 and 70% at least. Furthermore, this stock must not surpass 250 tonnes of fishing mortality until new guidance from SCRS is supplied to the Commission.

Based on this information from MSC overlapping fisheries, the estimated annual catch, including from this fishery is around 125.1 t, possibly upwards of 170.9 t if maximum annual catches are considered. It is important to note that this is likely an overestimate given the majority of shortfin mako catch from this fishery and others. Further, there is no current information regarding the bycatch rate of North Atlantic shortfin mako shark by the UoA. Therefore, despite Recommendation 21-09, which sets the total mortality limit at 250 t, the current assessment can only estimate the impact of the UoA on the species, its contribution to total stock removals. Thus, it is only “likely” that the stock removals are within the limits set by Rec 21-09, and only **SG60 is met**.

There are no national and/or international requirements that set specific limits for the ETP species that interact with the Atlantic UoAs. Therefore, scoring issue a) is not scored and cumulative impacts (e.g. combined impacts of MSC UoAs) do not require consideration based on the MSC criteria for ETP species (see Table GSA3 in MSC Guidance to the Fisheries Standard v2.01). RBF will likely be required to score ETP outcome status at full assessment.

b	Direct effects			
	Guide post	Known direct effects of the UoA are likely to not **hinder recovery** of ETP species.	Direct effects of the UoA are **highly likely** to not **hinder recovery** of ETP species.	There is a **high degree of confidence** that there are no **significant detrimental direct effects** of the UoA on ETP species.

	Met?	Oceanic whitetip shark: Yes Silky shark: Yes NAO shortfin mako: Yes Hammerhead spp.: Yes Giant manta ray: Yes Thresher spp.: Yes Leatherback turtle: No Loggerhead turtle: No Olive Ridley turtle: No Yellow-nosed albatross: Yes Black-browed albatross: Yes Spectacled petrel: Yes Wandering albatross: Yes Sooty albatross: Yes Great shearwater: Yes	Oceanic whitetip shark: No Silky shark: No Bigeye thresher shark: No NAO shortfin mako: No Giant manta ray: No Hammerhead spp.: No Thresher spp.: No Leatherback turtle: No Loggerhead turtle: No Olive Ridley turtle: No Yellow-nosed albatross: No Black-browed albatross: No Spectacled petrel: No Wandering albatross: No Sooty albatross: No Great shearwater: No	Oceanic whitetip shark: No Silky shark: No Bigeye thresher shark: No NAO shortfin mako: No Giant manta ray: No Hammerhead spp.: No Thresher spp.: No Leatherback turtle: No Loggerhead turtle: No Olive Ridley turtle: No Yellow-nosed albatross: No Black-browed albatross: No Spectacled petrel: No Wandering albatross: No Sooty albatross: No Great shearwater: No

Rationale

As mentioned previously, the fishery under current pre-assessment has not been able to supply accurate and reliable third-party observer data that would verify the type, and composition of bycatch associated with the vessels. Despite this, estimates of the types of species likely to be interacted with have been made using similar Atlantic Ocean tuna longline fisheries that operate in the same areas (DiNardo, et al., 2022; Jones, et al., 2024). Due to the lack of fishery-specific data from the assessed fishery, the assessment team capped the potential scoring at SG60, since it cannot be definitively stated that “Direct effects of the UoA are highly likely to not hinder recovery of ETP species.”

Details of the ETP species thought to be associated with this fishery, based on existing MSC reports, can be found in Table 9, and include:

- **Elasmobranchs:** silky shark, short- and long-fin mako shark, oceanic whitetip shark, hammerhead spp., thresher shark spp., giant manta ray and manta/devil rays (mixed).
- **Marine turtles:** marine turtles, (included green turtle), leatherback turtle, loggerhead turtle, and olive Ridley turtle.

- **Seabirds:** wandering albatross, black-browed albatross, Atlantic, yellow-nosed albatross, sooty albatross, spectacled petrel, white-chinned petrel and spectacled petrel.
- **Marine mammals:** Melon-headed whale

Elasmobranchs

Silky Shark

Although no stock assessment for silky shark in ICCAT, it is stated in Rec. 11-08 that CPCs shall prohibit any activities related to retaining, landing, trading, transshipping, storing, selling, or offering for sale any part of or whole carcass of the sharks in any fisheries (para. 1). Other paragraphs state that CPCs should ensure silky sharks to be released unharmed and properly record with indication of life status.

An environmental risk assessment (ERA) using a PSA was conducted on Atlantic Ocean silky sharks in 2015, and highlighted vulnerability scores for both stocks (Cortes, et al., 2015) South Atlantic silky shark were assigned (i) the lowest risk (rank 12 of all species assessed) for vulnerability as calculated using the Euclidean distance, (ii) high vulnerability (rank 5) for vulnerability as calculated using the multiplicative index and (iii) medium risk (rank 6) for vulnerability as calculated using arithmetic mean of the productivity and susceptibility ranks. North Atlantic silky shark were assigned (i) medium risk (rank 5); (ii) low risk (rank 11) and; (iii) medium risk (rank 8).

Previous studies on the post-release survival rates of silky sharks from Pacific Ocean longline tuna fisheries have shown positive results (Hutchinson & Bigelow, 2019), whereby appropriate handling of bycaught silky sharks led to improved rates of survivorship in 25 out of 25 silky sharks that were captured. Whilst this is a low sample size, it is helpful to understand that with the correct procedures, post-release survival of these animals is possible. However, at this stage of the pre-assessment, it is unclear if handling and release techniques are 1. Implemented across the vessels, and 2. Used consistently across sets to promote this post-release survival. Likewise, without fishery-specific observer data, there is no way to verify that any sharks are being released alive. Nevertheless, it is likely that that fishery would not hinder the recovery of the species using similar fisheries as examples of the levels of silky shark bycatch at this stage. **SG60 is met**.

Given the insufficient logbook data and absence of observer data, we considered that the direct effects of the UoA are **highly likely** to not hinder recovery of this species; **SG80 is not met**.

Oceanic Whitetip Shark

Although oceanic whitetip shark is not yet assessed by ICCAT, it is stipulated in Rec. 10-07 that CPCs shall prohibit any activities related to retaining, landing, trading, transshipping, storing, selling, or offering for sale any part of or whole carcass of the sharks in any fisheries. CPCs shall further establish an observer programme to record and monitor the number of discards and releases of oceanic whitetip sharks with indication of status (dead or alive) and report it to ICCAT.

Using other fisheries to estimate ETP bycatch, it is clear that oceanic whitetips are expected to be caught by the fishery under pre-assessment. Fate and post-discard survivorship are unknown, but as with silky sharks, the rate of post release survival has been estimated 66.7% - 91.7%, depending on the status of caught sharks (alive, alive in good condition, alive but injured) (Hutchinson & Bigelow, 2019).

Average reported ICCAT catch for oceanic whitetip shark was very low–- 2 t in 2018-2020 and 1 t in 2021 according to ICCAT Task I. However, as with most shark bycatch estimates, this is considered to be unreliable and underreported. Nevertheless, based on similar fisheries, it is believed that the catch rate of oceanic whitetip sharks by the fishery under assessment is low, and they are likely not to hinder recovery of oceanic whitetip shark in the North and South Atlantic UoAs; **SG 60 is met.**

Given the insufficient logbook data and absence of observer data, we do not consider any direct effects of the UoA are “highly likely” to not hinder recovery of oceanic whitetip shark; **SG80 is not met**.

Bigeye Thresher Shark

Bigeye thresher shark has a global distribution with and is considered “vulnerable” on IUCN red list. Scaled up observer data from the UoA fleet suggest an average 705 individuals (5.1 t) were caught annually between 2016 and 2020. Like many sharks, the species has low productivity and fecundity (2 pups per cycle) and late maturity (12–13 years for females). Its habitat is ranged from 500 – 750 metres in terms of depth and is restricted in tropical area in terms of latitudinal distributions.

There is currently no quantitative stock assessment for this species and basic fishery indicators are limited. However, as with silky sharks, the 2015 ERA conducted by Cortes et., al., demonstrated that they were one of the only stocks with the lowest productivity rating and highest susceptibility to longline fishing.

Average reported ICCAT catch for bigeye thresher shark in the ICCAT Convention Area was 19 t in 2018, 14 t in 2019 and 11 t in 2020, according to ICCAT Task I, but this is again considered to be underestimated.

The species is prohibited in 2009 by ICCAT including retaining onboard, transshipping, landing, storing, selling, or offering for sale any part or whole carcass of bigeye thresher sharks in any fishery with exception of a Mexican small scale coastal fishery with a catch of less than 110 fish. CPCs is also required to ensure the flagged vessels to release the species unharmed (Rec. 09-07).

It has been estimated that the post release survival of the species is around 87.5% (Hutchinson & Bigelow, 2019).

Given the insufficient logbook data and absence of observer data, the direct effects of the UoA are currently unknown but can be estimated – using similar longline tuna fisheries – “likely” to not hinder the recovery of this species; **SG 60 is met**.

There is no possible way to state that the UoA is “highly likely” to not hinder the recovery of the species at this stage without fishery-specific observer data that includes information about the rate of species bycatch, release, survival rate and mortality rate. **SG80 is not met**.

Shortfin mako (NAO)

The species is protected by ICCAT according to Rec. 21-09, the prohibition is not extended to southern stock. Shortfin mako is mostly caught by pelagic drift longline fisheries. Others gear such as gillnet, handline, and seine also catch the species occasionally. In terms of volume, it is the second most common shark species taken as by-catch in tuna fisheries of the ICCAT area (Rosa et al. 2018).

No post release survivorship information is available for shortfin mako, natural mortality events is rarely observed. Current fishing mortality (F) was estimated to be well above F_{MSY} (F_{2015}/F_{MSY} = 1.93-4.38), with a combined 90% probability from all the models of being in an overfished state and experiencing overfishing (B/B_{MSY} deterministic estimates ranged from 0.57 to 0.85) (ICCAT 2017).

Logbook data collated by the fleet manager records no information about shortfin mako catch and fate, observer data is not in place.

Given the insufficient logbook data and absence of observer data, we considered that the direct effects of the UoA are highly likely to not hinder recovery of this species; **SG 60 is met but not SG80**.

Hammerhead spp.

Great and scalloped hammerhead are caught in other similar fisheries. This fishery does not have any information related to hammerhead spp.; however, it is found in other similar fisheries that hammerhead spp. was caught and recorded in their observer data.

Great and scalloped hammerhead are considered as long lived, late maturing, and relatively slow growing species. Theoretical longevity estimates from research conducted by Piercy et al. (2010) were 31.4 years for females and 21.6 years for males (Piercy, et al., 2010). Although no data about hammerhead spp. is available in this fishery, it is found that great and scalloped hammerhead are vulnerable to overfishing. More than 90 percent of great hammerheads die once they are captured by targeted or incidental fisheries. Retention of hammerhead sharks (family Sphyrnidae) in the Atlantic Ocean is banned and individuals must be released under ICCAT Recommendation 10-08.

The similar fisheries indicate that the fisheries would not hinder recovery of the ETP species, therefore, it is likely that this fishery would be the same, thus reaching **SG60**. Given the absence of observer coverage, it cannot be stated that the direct effects of the UoA are “highly likely” not hinder the recovery of great or scalloped hammerhead species; **SG80 is not met.**

Manta rays (giant manta, and other mobulid spp.)

Giant manta ray is considered “Endangered” on the IUCN Red List, and they are vulnerable to fishing as their life history traits (k-selected) mean their maximum rates of intrinsic population increase are among the lowest of all elasmobranchs (Dulvy et al. 2014). Mobulids are particularly susceptible to incidental catch

in tuna fisheries due to their epipelagic distribution in regions of high productivity, leading to a high level of distributional overlap with target species.

There is currently no quantitative stock assessment for this species and basic fishery indicators are limited. According to Mas et al. (2015) who examined mobulid ray bycatch from at-sea observer data (Japanese and Uruguayan longline fleets) in the south-western Atlantic, the percentage of sets with observed catches of manta rays was 0.028 per 1,000 hooks (4.3% of total fishing sets). This represented approximately 0.05% of the total catch of both fleet combined, with only 12.4% of total bycatch occurring in the high seas. A total of 90% were released alive (Mas, et al., 2015).

The similar fisheries indicate that the fisheries would not hinder recovery of the ETP species, therefore, it is likely that this fishery would be the same, thus reaching **SG60**. Given the absence of observer coverage, it cannot be stated that the direct effects of the UoA are “highly likely” not hinder the recovery of great manta ray, or other mobulid species; **SG80 is not met.**

Sea Turtles

Even though this fishery’s logbook does not indicate any sea turtle encounter, the similar fisheries have indicated that several turtle species are likely to be caught accidentally, including loggerhead turtles, leatherback turtles, olive ridley, and other unspecified marine turtles.

The leatherback turtle is listed on the IUCN Red List as Vulnerable, and also features on the Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and Appendix I of the Conservation of Marine Species (CMS). Loggerhead, and olive Ridley turtles estimated to be caught by this fishery based on similar reports, are listed as endangered on the IUCN Red List and also feature on Appendix I of CMS.

Mitigation of interactions and mortality, strengthening of reporting mechanism are mentioned in Rec. 03-11, 10-09 and 13-11.

Wallace et al. (2010) summarises that leatherback and loggerhead turtles are particularly suffering from high bycatch impact (Wallace, et al., 2013). In addition, the UoA fleet uses Argentine shortfin squid as bait, given studies have proven significantly reduce bycatch rate for loggerhead and leatherback turtles in the Atlantic (Swimmer, et al., 2017). the UoA fleet is advised to implement bycatch mitigation measures. It is reasonable to believe that this fishery is having interactions towards sea turtles.

Based on this information, it is not known if direct effects of the UoA are likely to not hinder recovery of ETP sea turtle species, more observations related to the interactions between squid bait and sea turtles are needed; **SG 60 is not met**.

Seabirds

There are no seabirds records kept in the skipper logbooks, nor are there any current observer data reports that can be used to estimate seabird bycatch. Nevertheless, using the MSC reports from similar fisheries,

seabird bycatch of albatross and petrels have been estimated to occur in this fishery and will thus be discussed further.

Yellow-nosed albatross, black-browed albatross, spectacled petrel, wandering albatross, sooty albatross, and white-chinned petrel are all estimated as bycatch in the fishery under assessment. Estimates of seabird bycatch by the Taiwanese distant longline tune fleet in the Atlantic Ocean were determined by Yeh et al., (2012) using generalised additive models. Estimated seabird bycatch rates ranged from 0.026 birds per thousand hooks in the southwest Atlantic to 0.063 birds per thousand hooks in the southeast Atlantic with seabird hotspots identified at 20°–40°S/10°W–15°E and 35°–45°S/45°–55°W (Yeh, et al., 2012). Yeh et al., (2012) estimated the total seabird incidental mortality from pelagic longline fishing in the southern Atlantic Ocean to be between 3,446 and 6,083 birds per year from 2004 to 2008, with 2,255 – 3,707 in the south-east and 932 – 2,376 in the south-west.

Given the absence of observer data and no record of seabirds' interactions and fate record in logbook, we cannot determine if the UoA alone is likely to not hinder recovery of this species. Further, there is no information about the use of mitigation techniques on board to prevent seabird bycatch that would therefore reduce the total impact on the stocks. Estimates from similar fisheries leads the assessment team to believe that the impact of the UoA is likely not to hinder the recovery of the stock. **SG60 is met**. But as there is no fishery-specific data at this stage, **SG80 cannot be met**.

Marine mammals

Melon-headed whale

The melon-headed whale is a tropical and sub-tropical marine mammal that occurs in large groups in deep oceanic waters worldwide. The species is assessed on the IUCN Red List as "Least Concern". Studies in the WPCO, identified that in longline fisheries for all reported interactions with marine mammals, 95% were sightings beside the vessel without interacting with the gear and for the 5% that did interact with the gear, around 84% of individuals were released alive (Williams et al. 2020; 2021).

Given that the assessment team has not received verified, third-party observer data to support any evidence that marine mammals are caught by this fishery, the similar fisheries from which the estimated bycatch data derive have been used to score this rationale. Therefore, as these similar fisheries anticipated that the UoA is likely that it will not hinder the recovery of the species, **SG60 is met**. However, without fishery-specific data, **SG80 cannot be met** at this stage.

c	Indirect effects			
	Guide post		Indirect effects have been considered for the UoA and are thought to be **highly likely**	There is a **high degree of confidence** that there are no **significant detrimental**

			to not create unacceptable impacts.	**indirect effects** of the UoA on ETP species.
	Met?		All Scoring Elements: No	All Scoring Elements: No

Rationale

For the UoA fleet, indirect effects on ETP species might include post-release mortality of an animal (if it is caught and released using best practice), disturbance of nesting behaviour, noise or pollution and removal of potential prey species.

Elasmobranchs: Removal of prey – sharks are opportunistic feeders and not subject to restricted mode of diet. Sharks predate a wide range of species including barracuda, jacks, dolphinfish, tuna, skipjack and other scombrids, white marlin, and squid, and occasionally stingrays, seabirds, turtles, marine gastropods, crustaceans. Such diversity of prey species makes it highly unlikely that the UoA fleet would lead to unacceptable impacts towards any of ETP sharks.

Sea turtles: Disturbance around nesting / inter-nesting foraging areas – this is highly unlikely given the fishery is operating offshore and away from coastal nesting sites.

Seabirds: Disturbance around nesting / roosting, foraging areas – this is highly unlikely given the fishery is operating offshore and away from roosting areas.

Marine mammals: As with sharks, many marine mammals prey on pelagic fish, including tunas and mackerels. Therefore, the removal of these animals from the environment may lead to indirect consequences on these predatory species.

To summarise, indirect effects have been considered for the UoA and are thought to be **highly likely** to not create unacceptable impacts. **SG 80 is met.**

References

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Overall Performance Indicator (PI) Rationale

Draft scoring range	**<60**
Information gap indicator	**More information sought to score PI**
Data-deficient? (Risk-Based Framework needed)	**No**

PI 2.3.2 – ETP species management strategy

PI 2.3.2		The UoA has in place precautionary management strategies designed to: - meet national and international requirements; - ensure the UoA does not hinder recovery of ETP species. Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place (national and international requirements)			
	Guide post	There are **measures** in place that minimise the UoA-related mortality of ETP species, and are expected to be **highly likely to achieve** national and international requirements for the protection of ETP species.	There is a **strategy** in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to be **highly likely to achieve** national and international requirements for the protection of ETP species.	There is a **comprehensive strategy** in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to **achieve above** national and international requirements for the protection of ETP species.
	Met?	Elasmobranchs: No Turtles: No Seabirds: No Marine mammals: No	Elasmobranchs: No Turtles: No Seabirds: No Marine mammals: No	Elasmobranchs: No Turtles: No Seabirds: No Marine mammals: No

Rationale

There is a binding 5% observer coverage level at the national level (based on fishing days, sets or trips) set by ICCAT under Recommendation 16-14 for all longline vessels fishing in the Atlantic Ocean. The regional observer scheme aims to collect independent fishery information on interactions with, inter alia, ETP species during longline operations, which inform management decision-making through quantifying bycatch (including sharks, turtles, marine mammals and seabirds).

Elasmobranchs:

ICCAT has implemented various Recommendations for elasmobranch species. ICCAT Recommendation 04-10 requires that CPCs take measures to ensure fishers fully utilise any retained catches of sharks and

that a 5% shark fin: carcass ratio is demonstrated for retained sharks. There is also a prohibition on vessels from retaining on board, transhipping, landing or trading any shark fins and fisheries not directed at sharks should have in place measure to encourage live release of sharks caught incidentally and are not used for food/subsistence. This recommendation also requires CPCs to conduct research to identify ways to make fishing gears more selective. There is also reporting requirements. Additionally, ICCAT Recommendation 18-06 requires comprehensive reporting by CPCs on their implementation of ICCAT shark measures to the ICCAT Secretariat, with their Annual Reports, details of their implementation of and compliance with all shark conservation and management measures. There are also specific Recommendations relating to ETP shark species. For example, ICCAT Recommendation 10-07 prohibits retaining onboard, transhipping, landing, storing, selling, or offering for sale any part or whole carcass of oceanic whitetip sharks in any fishery, and requires observers to record the number of discards and releases of oceanic whitetip sharks with indication of status (dead or alive) and report this information to ICCAT. There are also similar Recommendations in place prohibiting retention, requirements for data collection, research and safe handling and release for bigeye thresher shark (09-07), hammerhead sharks – family Sphyrnidae (10-08), north Atlantic shortfin mako (21-09) and silky sharks (11-08) by CPCs. There is also requirements under Recommendation 21-09 (rebuilding plan for north Atlantic shortfin mako shark) for CPCs to gradually increase the observer coverage, including EMS, of all longline fishing vessels in ICCAT fisheries that may have potential interaction with North Atlantic shortfin mako sharks to 10%, which is also reflected more generally under Recommendation 21-01 in the management programme for topical tunas for vessels >20m length overall and targeting bigeye, yellowfin and skipjack tuna in the Convention Area (CA).

The fishery under assessment also has a Policy Prohibiting Shark Finning that extends to all Chinese-flagged vessels under the management. The Policy stipulates that the fishery:

6. Does not actively target sharks
7. Prohibits the practice of shark finning
8. Promotes the safe release of sharks that are caught alive
9. Retains the carcass of all sharks that are landed with fins naturally attached
10. Records shark species in fishing logbooks for all that are landed onboard.

The fishery also has a Shark and Sea Turtle Conservation Policy implemented throughout the fishery management which includes a list of best practices that the vessels must adhere to, including:

14. Does not actively target sharks
15. Does not set shark lines on buoys
16. Prohibits the use of wire traces
17. Prohibits the practice of shark finning and out policy is posted on the vessel for crew awareness
18. Do not retain oceanic whitetip or silky sharks
19. For other sharks that are landed, the carcass is retained with fins naturally attached or partially cut and tied to the shark

20. Record the species in the fishing logbook for all sharks and sea turtles that are landed
21. Use wide circle hooks
22. Use only monofilament lines
23. Use fish rather than squid for bait
24. When feasible, set hooks deeper than typical sea turtle-abundant depths (40-100m)
25. Do not engage in trading with fishing companies that do not observe the above practices
26. Promotes best practices for bycatch handling and release of sharks, turtles, cetaceans and birds and the fishery does everything possible to release these individuals alive

This fishery has not undergone observer programme and on-site visit to provide high confidence that the skippers and crew are handling elasmobranchs in accordance with the conservation policy.

ICCAT Recommendation 23-12, effective January 2025 pending an SCRS response, prohibits retaining on board, transshipping, or landing, in whole or in part, any specimen of whale shark. It also prohibits setting a purse seine on a school of tuna associated with a whale shark if the animal is sighted prior to the commencement of the set, and requires that, if incidentally encircled in the purse seine net, it is safely released.

Whilst there are measures set by ICCAT in place for elasmobranchs, the extent to which these are adopted and fully implanted by the fishery under assessment is not currently known due to the lack of observer data and paucity of logbook information. Further, there is no evidence that the fishery complies with the shark finning or Shark and Turtle Conservation Policy. Nor are these two policies considered to be a “strategy”. Therefore, whilst it is expected that the ICCAT measures are likely to achieve national and international requirements for the protection of ETP species, without specific evidence to demonstrate this, it is not “highly likely” and thus **SG60 cannot be met**.

Sea turtles

There are also ICCAT Recommendations providing measures for sea turtles, such as Rec. 22-12, which has in place reporting obligations in regard to interactions with marine turtles (including catch and effort data that take into account fishing gear (hook type, size and bait), location and fate information. It also has in place requests for research and information on mitigating sea turtle by-catch in ICCAT fisheries, including reducing the number of interactions and/or the mortality associated with those interactions. It requires CPCs that fish in a shallow-set manner (<100m) employ or implement the: (i) use of only large circle hooks; (ii) use of only finfish bait; or (iii) use of another reviewed and approved method by the SCRS and the Commission for reducing interactions with marine turtles. There are exemptions to the above if a CPC achieves and maintains 10% observer coverage, complies with data reporting requirements and has approval from the SCRS and Commission. The Recommendation also requires CPCs of longline vessels to carry on board line-cutters and de-hookers and use these to prevent harm to marine turtles incidentally caught during operations. It also requires safe handling practices for turtles when removed from the water through use of basket lift or dip-net and in such a way that is aligned with the FAO’s Guidelines to Reduce

Sea Turtle Mortality in Fishing Operations (2009) (FAO Guidelines). The Guidelines requires the implementation of mitigation, identification, handling and de-hooking techniques and keep on board all necessary equipment for the release of marine turtles. Fishers are also required to bring aboard, if practicable, any captured marine turtle that is comatose or inactive as soon as possible and foster its recovery, including giving it resuscitation in accordance with guidelines before returning it to the water. Lastly, longline vessels are encouraged to increase observer coverage to 10% by 1 January 2024 in areas where encounters with marine turtles have been documented and reported to the SCRS.

The Shark and Turtle Conservation Policy (specific measures described above) is applicable for the Chinese-flagged fishery and includes measures required to be implemented that will mitigate sea turtle incidents and improve post-release survival.

However, as with elasmobranchs, the extent to which these are adopted and fully implanted by the fishery under assessment is not currently known due to the lack of observer data and paucity of logbook information. Therefore, whilst it is expected that the Policy and ICCAT measures are likely to achieve national and international requirements for the protection of ETP species, without specific evidence to demonstrate this, it is not “highly likely” and thus **SG60 cannot be met**.

Seabirds

ICCAT has implemented Recommendation 07-07 and subsequent 11-09 to manage seabird interactions. Recommendation 07-07 has in place reporting obligations in regard to interactions with seabirds and requires all vessels fishing between 20°S and 25°S to carry and use bird-scaring lines (tori lines) (with certain exemptions for longline vessel targeting swordfish using monofilament longline gear if they set longlines at night and use a minimum swivel weight of 60g placed not more than 3m from the hook to achieve optimum sink rates. ICCAT Recommendation 11-09, which strengthens the previous recommendation, requires CPCs in the area south of 25°S to use at least two mitigation measures (night setting with minimum deck lighting, bird-scaring lines (tori lines) or line weighting. In other areas, these mitigation measures should also be considered. CPCs are also required to report on the efficacy of these mitigation measures and how they are implementing these measures. According to the ACAP the combined use of some of these measures (weighted branch lines, bird scaring lines (tori lines) and night setting) represents best practice to mitigate seabird bycatch in pelagic longline fisheries.

The extent to which these are adopted and fully implanted by the fishery under assessment is not currently known due to the lack of observer data and paucity of logbook information. Further, there is no evidence that the fishery under assessment operates under an ETP species management plan or strategy that describes all the relevant policies. Therefore, whilst it is expected that the ICCAT measures are likely to achieve national and international requirements for the protection of ETP species, without specific evidence to demonstrate this, it is not “highly likely” and thus **SG60 cannot be met**.

Marine mammals

Apart from bycatch reporting obligations under ICCAT Recommendation 11-10 there are no measures in place for longline fisheries in the Atlantic Ocean to prevent and mitigate interactions with marine mammals.

Furthermore, at this stage of the pre-assessment, there is no evidence that the fishery operates under an ETP management plan or has policies in place to reduce the capture of marine mammals and/or has methods in place to reduce the post-release mortality, if bycatch incidents occur. Therefore, in lieu of management measures and plans/strategies, **SG60 cannot be met**.

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

Rationale

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

c	Management strategy evaluation			
	Guide post	The measures are **considered likely** to work, based on **plausible argument** (e.g., general experience, theory or comparison with similar fisheries/species).	There is an **objective basis for confidence** that the measures/strategy will work, based on **information** directly about the fishery and/or the species involved.	The strategy/comprehensive strategy is mainly based on information directly about the fishery and/or species involved, and a **quantitative analysis** supports **high confidence** that the strategy will work.
	Met?	**Elasmobranchs –** Yes **Marine turtles –** Yes **Seabirds –** Yes	**Elasmobranchs –** Yes **Marine turtles –** Yes **Seabirds –** Yes	**Elasmobranchs –** Yes **Marine turtles –** Yes **Seabirds –** Yes

		Marine mammals - Yes	**Marine mammals -** Yes	**Marine mammals -** Yes

Rationale

Elasmobranchs (see PI 2.3.1b for complete list)

Appropriate handling and release methods, statistical reporting and gear requirements, as well as retention bans on selected species are key elements of ICCAT Recommendations to reduce impacts on ETP elasmobranchs.

The fishery does not retain any sharks as per the shark finning policy for the Chinese-flagged vessels. However, interactions with shark species are not observed by independent, third parties, nor by the fisher logbooks specifically. Therefore, there is currently no information about the types of species encountered nor their rate of capture, and post-release survival. Therefore, despite the measures from ICCAT and the shark finning policy in place on the Chinese-flagged vessels, and the Shark and Sea Turtle Conservation Policy

The fleet signed Policy of Prohibiting Shark Finning and Shark and Sea Turtle Conservation Policy to that include the use of circle hooks and monofilament line to reduce shark bycatch and not use “shark lines” or wire trace reflect best practice. The policy was drafted and signed on the basis of empirical evidence to support the recommended measures. The combination of empirical evidence and plausible argument supports. Likewise, full implementation of these measures described in the Policies has been effective in similar fisheries. Therefore, it is plausible that the measures are considered to work. Thus, **SG60 is met.**

Although not reported in ICCAT jurisdiction, it is noted that several cases of Chinese fishing companies found shark fining activities in Pacific Ocean in recent years. NOAA’s Improving International Fisheries Management 2023 singles out China for its involvement in illegal, unreported, and unregulated (IUU) fishing, including substantiated allegations of multiple violations by Chinese vessels of marine conservation measures related to sharks and sea turtles.

Furthermore, without fishery-specific observer data, there is no objective basis for confidence that the measures/strategy will work, based on information directly about the fishery and/or the species involved. Thus, **SG80 is not met**.

Sea Turtles (see PI 2.3.1b for complete list)

ICCAT Rec. 22-12 has regulated comprehensive mitigation measures for CPCs. Rec. 11-10 and 16-14 also demand a minimum standards of sea turtle data collection. It is also regulated that SCRS should regularly review the new data and provide management advice to ICCAT. Scientific papers have suggested that circle hooks, particularly those which have large minimum widths and are large relative to mouth size of susceptible sea turtles, can reduce hooking interactions or mortality or both. Using fish bait, not squid bait, may also reduce interactions.

The measures described in the Shark and Turtle Conservation Policy describe a range of requirements for the vessels to adhere to, to ensure that the sea turtle bycatch is reduced. However, one of the requirements is the use of fish rather than squid as bait, and the bait profiles in

*Justification has been made using estimated total catch composition information. However, this has not yet been confirmed by observer data.

Table 8 show that Argentine shortfin squid are still predominant in the bait sourcing. Therefore, this indicates that the policy is not being fully adhered to by the fishery. Thus, **SG60 cannot be met**.

Seabird (see PI 2.3.1b for complete list)

ICCAT Rec. 07-07 and 11-09, 11-10, 10-10 have stipulated the minimum standards of seabird mitigation measures, including night setting, tori lines, and line weighting, and regular reporting (bycatch and discards) to the Commission.

There are no fishery-specific measures in place regarding seabird bycatch. Therefore, **SG60 cannot be met**.

Marine mammals (see PI 2.3.1b for complete list)

There are limited measures in place at the regional level (ICCAT) for management of marine mammals apart from general reporting requirements. Compounded with the paucity of conservation measures or fishery-specific policies to reduce the marine mammal bycatch and improve post-release survival, **SG60 cannot be met**.

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

Rationale

Although data is insufficient to understand ETP interaction in this fishery, it is evident that this fishery does interact with ETP sharks and even some turtles and seabirds occasionally based on the reports from other similar fisheries.

The scoring issue b has briefly summarised the strategy ICCAT has adopted to manage ETP species. Yet, more data is required to prove if such strategies are considered “successful”; **SG 80 is not met**.

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

Rationale

Although data is insufficient to understand ETP interaction in this fishery, it is evident that this fishery does interact with ETP sharks and even some turtles and seabirds occasionally based on the reports from other similar fisheries.

The scoring issue b has briefly summarised the strategy ICCAT has adopted to manage ETP species. Yet, more data is required to prove if such strategies are considered “effective”. Thus, **SG 60 is not met**.

References

Medley, P.A.H., Southall, T., Bostrom, J., Zollett, E., Gaudian, G. 2018. A Pre-assessment of the Sustainability of Global Tuna Fisheries Relative to Marine Stewardship Council Criteria: Principle 2. ISSF Technical Report 2018-16. International Seafood Sustainability Foundation, Washington, D.C., USA

Restrepo, V., H. Murua, A. Justel and H. Koehler. 2024. Tuna Fisheries’ Impacts on Non-Tuna Species and Other Environmental Aspects: 2024 Summary. ISSF Technical Report 2024-03Rev. International Seafood Sustainability Foundation, Pittsburgh, PA, USA.

Overall Performance Indicator (PI) Rationale

Draft scoring range	**<60**

Information gap indicator	**More information sought to score PI**

PI 2.3.3 – ETP species information

PI 2.3.3		**Relevant information is collected to support the management of UoA impacts on ETP species, including:** - **Information for the development of the management strategy;** - **Information to assess the effectiveness of the management strategy; and** - **Information to determine the outcome status of ETP species**		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impacts			
	Guide post	Qualitative information is **adequate to estimate** the UoA related mortality on ETP species. **OR** **If RBF is used to score PI 2.3.1 for the UoA:** Qualitative information is **adequate to estimate productivity and susceptibility** attributes for ETP species.	Some quantitative information is **adequate to assess** the UoA related mortality and impact and to determine whether the UoA may be a threat to protection and recovery of the ETP species. **OR** **If RBF is used to score PI 2.3.1 for the UoA:** Some quantitative information is **adequate to assess productivity and susceptibility attributes** for ETP species.	Quantitative information is available to assess with a high degree of certainty the **magnitude of UoA-related impacts, mortalities and injuries and the consequences for the status** of ETP species.
	Met?	**All scoring elements:** No	**All scoring elements:** No	**All scoring elements:** No

Rationale

All ETP species (20 scoring elements – see PI 2.3.1b for complete list)

The second ICCAT Independent Performance Review panel (ICCAT, 2016) noted that 'there are no reliable estimates of the mortality caused by longlines on these species and recommends that a time-limited programme be designed to estimate seabird and turtle mortality in ICCAT longline fisheries. They recommended that the programme should involve 'increased observer coverage deemed sufficient to

estimate turtle and seabird mortality by all major fleets. Such increased observer coverage would also provide information on the impact of ICCAT fisheries on other components of the ecosystem.

Restrepo et al (2024) indicates longline fisheries should be scored under 80 due to insufficient observer coverage and lack of detailed logbook information was often cited, followed by species-specific gaps for turtles, seabirds and sharks (Restrepo, et al., 2024).

Similar in this fishery particularly, without more specific information from the UoA, it is not possible to infer risk from the qualitative information available on ETP interactions with Atlantic tuna fisheries more generally, thus making it difficult to justify meeting SG60 with the information available for this pre-assessment; **SG 60 is not met**.

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

Rationale

The UoA observer coverage does not exist.

Whilst similar fisheries indicate that there is some information to justify the impacts of management strategies towards ETP species, particularly elasmobranchs, there is no fishery-specific observer data that can validate the full implementation of the management measures required by ICCAT and also the two Policies (Policy Prohibiting Shark Finning, and Shark and Turtle Conservation Policy).

ICCAT PA1_520/2023 has regulated the longline vessels flying their flag 20 meters length overall (LOA) or greater targeting bigeye, yellowfin and/or skipjack in the Convention area, CPCs shall ensure a minimum of 10% observer coverage of fishing effort starting in 2026, with presence of human and electronic observers.

As stated in National Compliance Scheme and Actions Taken by China to Implement Measures in C-21-04, China Overseas Fisheries Association (COFA) and Shanghai Ocean University have a programme for the observers' training, selection, dispatch, etc. Namibian Marine Resources Act 27 of 2000 covers

the dispatch, training, and duty for fishery observers to comply with. However, coverage is not mentioned. In this UoA, observer data has not been acquired for this pre-assessment and, therefore, no information to measure trends in ETP bycatch rates and support a strategy to manage impacts on ETP species. Thus, **SG60 is not met**.

References

MFMR, 2000. *Marine Resources Act,* s.l.: Republic of Namibia Ministry of Fisheries and Marine Resources.

Restrepo, V., Murua, H., Justel-Rubio, A. & Koehler, H., 2024. *Document: ISSF 2024-03Rev: Tuna Fisheries' Impacts on Non-Tuna Species and Other Environmental Aspects: 2024 Summary,* s.l.: International Seafood Sustainability Foundation.

Overall Performance Indicator (PI) Rationale	
Draft scoring range	**<60**
Information gap indicator	**More information sought to score PI**

PI 2.4.1 – Habitats outcome

PI 2.4.1		The UoA does not cause serious or irreversible harm to habitat structure and function, considered on the basis of the area covered by the governance body(s) responsible for fisheries management in the area(s) where the UoA operates		
Scoring Issue		SG 60	SG 80	SG 100
a	Commonly encountered habitat status			
	Guide post	The UoA is **unlikely** to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	The UoA is **highly unlikely** to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	There is **evidence** that the UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.
	Met?	Yes	Yes	No

Rationale

The UoA longline fishery occurs within surface oceanic waters and does not physically impact the seafloor during operation; effects on oceanic waters are also likely to be negligible (Grabowski, et al., 2014). Any issues relating to the discarding of pollutants or rubbish would however be detrimental to the habitat. Although ICCAT has not introduced general measures aimed at prohibiting waste disposal at sea, Medley et al. (2018) indicated that based on observer data, this activity is prohibited and appears to be broadly complied with (Medley, et al., 2018). However, a good record in this respect would need to be verified for any UoA vessels in a full assessment.

The gear impact on the water column – epipelagic habitat (considered here as the commonly encountered habitat). The gear passes through these habitats on shooting and hauling and remains in situ during the set. The gear has no long-term impacts on these habitats after it is hauled, unless it is lost. Gear loss may consist of monofilament and/or hooks, which could interact with the commonly encountered habitat and eventually encounter the seabed. Interactions with benthic features, at a scale where irreversible impacts on habitat types becomes a risk, are only likely to occur when longlines are dragged across the seabed. This is extremely unlikely in the case of this fishery considering the fishing depth and longline gear

In 2020 ICCAT introduced Rec. 19-11 on abandoned, lost or otherwise discarded fishing gear, this measure prohibits vessels abandoning and discarding fishing gear and encourages the retrieval of any

lost gear. This would need to be verified for the UoA by VMS and observer records. The fishery has no impact on habitats (main, minor or VMEs), that would reduce habitat structure and function to a point where there would be serious or irreversible harm. **SG80 is met**. However, in lieu of observer data and maps of fishing locations, there is no evidence that the UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm. **SG100 cannot be met**.

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

Rationale

Any VME habitats, such as coral reefs or habitats associated with seamounts in the UoA vicinity would not be affected directly by fishing activities, as they occur strictly near the surface in deep oceanic waters. Therefore, scoring issue 2.4.1.b relating to VMEs would not be scored as long as the fishery can show it does not take place on any VMEs. Ghost fishing due to lost or discarded gear could negatively impact seafloor habitat (or VMEs in the vicinity) but there is no evidence that this is a significant problem (Medley, et al., 2018).

As the fishery does not directly interact with any VMEs given this fishery only encounter epipelagic habitat. This fishery does not interact with VMEs as defined in GSA 3.13.3.2 (MSC Fisheries Standard v2.01). **This scoring issue is not relevant**.

c	Minor habitat status			
	Guide post			There is **evidence** that the UoA is highly unlikely to reduce structure and function of the minor habitats to a point

				where there would be serious or irreversible harm.
	Met?			NA

Rationale

As per Section 7.6.4 no minor habitats are identified only the pelagic main habitat scored in SIa. **This scoring issue is not relevant.**

References

Grabowski, J. H. et al., 2014. Assessing the Vulnerability of Marine Benthos to Fishing Gear Impacts. *Reviews in Fisheries Science & Aquaculture,* 22(2), pp. 142-155.

Medley, P. A. H. et al., 2018. *A Pre-assessment of the sustainability of global tuna fisheries relative to Marine Stewardship Council criteria: Principle 2. ISSF Technical Report 2018-16,* Washington: International Seafood Sustainability Foundation.

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

PI 2.4.2 – Habitats management strategy

PI 2.4.2		There is a strategy in place that is designed to ensure the UoA does not pose a risk of serious or irreversible harm to the habitats		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are **measures** in place, if necessary, that are expected to achieve the Habitat Outcome 80 level of performance.	There is a **partial strategy** in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above.	There is a **strategy** in place for managing the impact of all MSC UoAs/non-MSC fisheries on habitats.
	Met?	Yes	Yes	No

Rationale

As per the requirements of scoring issue (a) for PI 2.2.2, management measures are in place “if necessary”. This is to exclude the assessment of UoAs that do not impact the relevant component at these SG levels. As the fishery under assessment is mostly confined to the epipelagic habitat – the uppermost 200m of the water column. The distribution of the pelagic habitat is known over the spatial range in which the fishery operates from wildly available bathymetric maps and sea charts of the Atlantic Ocean The effect of pelagic longlines from the UoAs on this habitat (i.e. epipelagic habitat) is negligible. Given that the fishery is unlikely to impact benthic habitats, **SG60 and SG80 would be met** by default for the management in place, as per MSC Fisheries Standard v2.01 (SA3.2.9).

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

b	Management strategy evaluation			
	Guide post	The measures are **considered likely** to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/habitats).	There is some **objective basis for confidence** that the measures/partial strategy will work, based on **information directly about the UoA and/or habitats** involved.	**Testing** supports **high confidence** that the partial strategy/strategy will work, based on **information directly about the UoA and/or habitats** involved.

	Met?	Yes (default)	Yes (default)	Yes

Rationale

Even though measures are not ‘necessary’ to manage habitats, the fishery should collect and report data on abandoned, lost, and discarded fishing gear, and provide information on location of sets (Restrepo, et al., 2024). ICCAT Rec. 19-11 requires vessels to report lost fishing gear that cannot be retrieved within 24 hours and CPCs are required to produce a summary of lost gear within the Annual Report to ICCAT.

As detailed in 2.4.2a the partial strategy is the nature of the fishery (pelagic longline). Knowledge in relation to the way pelagic longline fishing gear is fished, as well as the ocean areas where the UoA fleet operates (open ocean, deep waters) is sufficient to discount any significant impacts on benthic habitats from the fishery and there is high confidence that it works. **SG100 is met**.

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

Rationale

As per the MSC Fisheries Standard v2.01 (SA3.2.9), since SIa and SIb were scored as default due to the “if necessary” requirement for this PI, SIc can also use the default scoring option here. Therefore, **SG80 is met**.

However, the monitoring of catches and fishing practices is only conducted via skipper logbooks. There is no third-party observer data available for this fishery so independent, unbiased data is unavailable. There is VMS tracking in place within the fishery, but again, at this stage of the pre-assessment, this has not been made available. Therefore, there is no quantitative evidence that the measures/partial strategy is being implemented successfully; **SG100 is not met**.

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

Rationale

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

Overall Performance Indicator (PI) Rationale	
Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

PI 2.4.3 – Habitats information

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

Rationale

As the fishery is mostly fishing in epipelagic area - the uppermost 200 metres of the water column. The distribution of the pelagic habitat is known over the spatial range within which the fishery operates from widely available sea charts and bathymetric maps of the Atlantic Ocean.

The derelicts from longline fishing gear potentially impact coral reef even though the distribution of coral reefs throughout the Atlantic Ocean has generally been mapped, potential impacts is not yet confidently known; **SG 80 is met but not SG 100.**

b	Information adequacy for assessment of impacts			
	Guide post	Information is adequate to broadly understand the nature of the main impacts of gear use on the main habitats, including spatial overlap of habitat with fishing gear. OR **If CSA is used to score PI 2.4.1 for the UoA:** Qualitative information is adequate to estimate the consequence and spatial attributes of the main habitats.	Information is adequate to allow for identification of the main impacts of the UoA on the main habitats, and there is reliable information on the spatial extent of interaction and on the timing and location of use of the fishing gear. OR **If CSA is used to score PI 2.4.1 for the UoA:** Some quantitative information is available and is adequate to estimate the consequence and spatial attributes of the main habitats.	The physical impacts of the gear on all habitats have been quantified fully.
	Met?	Yes	Yes	No

Rationale

Information on the spatial extent and on the timing and location of use of the fishing gear is collected by VMS (100% coverage) and thus there is accurate, near real-time monitoring of the spatial extent of interaction, and the timing and location of use of the fishing gear. Currently, the VMS reports have not been provided for the pre-assessment process.

Logbook data is collected from the UoA allowing for the spatial assessment of main impacts on main habitats. Therefore, **SG 60 and SG 80 are met**. However reliable data on the location of derelict longlines that become beached is not available and this hinders a full understanding of the nature of the impacts of the gear on these habitats (DiNardo, et al., 2022), thus **SG 100 is not met**.

	Monitoring

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

Rationale

Fishing takes place in the epipelagic habitat and the distribution of the pelagic habitat is known over the spatial range within which the fishery operates from widely available sea charts and bathymetric maps of the Atlantic Ocean (DiNardo, et al., 2022). The location of VMEs such as coral reefs throughout the Atlantic has also generally been mapped. Information on the spatial extent and on the timing and location of use of the fishing gear is collected by VMS (100% coverage) and thus there is accurate, near real-time monitoring of the spatial extent of interaction, and the timing and location of use of the fishing gear. Logbook data is collected from the UoA allowing for the spatial assessment of main impacts on main habitats. Therefore, **SG 80 are met**. However reliable data on the location of lost longlines that become beached is not available and this hinders a full understanding of the nature of the impacts of the gear on these habitats (DiNardo, et al., 2022), Adequate information continues to be collected to detect any increase in risk to the main habitats; **SG 100 is not met.**

References

DiNardo, G., Bodsworth, A. & Ahlers, B., 2022. *Tri Marine Atlantic albacore (Thunnus alalunga) longline fishery,* Emeryville: SCS Global Services.

Overall Performance Indicator (PI) Rationale	
Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

PI 2.5.1 – Ecosystem outcome

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

Rationale

Several key ecosystem elements might be disrupted by the fishery, including trophic relationships, size composition, biodiversity, and species distribution. The element considered of primary importance and to be most likely to be threatened by the fishery is that of trophic structure. A fishery can alter the structure and functioning of ecosystems through trophic interactions by removing forage species upon which higher trophic level species depend or through top-down trophic cascades or fishing down the food web.

Andersen and Pedersen (2009) use a size- and trait-based model to explore how marine ecosystems might react to perturbations from different types of fishing pressure (Andersen & Pedersen, 2010). They conclude that cascades are damped further away from the perturbed trophic level. Fishing on several trophic levels leads to a disappearance of the signature of trophic cascades. The ecosystems in which the longline fishery occurs are fished at all trophic levels. Furthermore, management of tuna fisheries by ICCAT and of fisheries for most high trophic level predators by the highly migratory species fishery management plan mitigate depletion of top predators and make it highly unlikely that the underlying ecosystem structure and function will be disrupted to a point of serious or irreversible harm.

Furthermore, Pershing et al. 2015 suggests that trophic cascade regime shifts are rare in open ocean ecosystems and that their likelihood increases as the residence time of water in the system increases (Pershing, et al., 2015). We consider that the fishery is highly unlikely to disrupt trophic structure of the ecosystem to extreme irreversible levels, due to the scale at which the fishery operates relative the scale of species distributions impacted by the fishery. The fishery does not remove a substantial amount of high

trophic level species (retained or bycatch) relative to the overall abundance of these species and does not impact lower trophic levels. Therefore, **SG80 is met**.

Although this fishery may be unlikely to disrupt key elements of ecosystem structure and function based on aforementioned studies, the absence of bycatch interaction evidence does not allow us to make such conclusion with high confidence; **SG100 is not met**.

References

Andersen, K. H. & Pedersen, M., 2010. Damped trophic cascades driven by fishing in model marine ecosystems. *Processes in Biological Sciences,* 277(7), pp. 795-802.

Pershing, A. J. et al., 2015. Evaluating trophic cascades as drivers of regime shifts in different ocean ecosystems. *Philosophical Transactions of the Royal Society B Biological Sciences,* 370(5), p. 20130265.

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

PI 2.5.2 – Ecosystem management strategy

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

Rationale

With respect to trophic structure and function, the ICCAT has in place a number of measures to control the total removals of the key target species of tropical tuna and for other species caught by the fishery that play important roles in the ecosystem structure and functioning (see Primary, Secondary and ETP species management). The measures in place for the target and associated species have been formed through an iterative process over consecutive meetings of the ICCAT and supported by continually refining assessments and data to support scientific research. By regulating the mortality of the target and incidental species the management measures consider the potential impacts of the UoA on the ecosystem, therefore **SG 60 is met**.

The ICCAT has established the Sub-committee on Ecosystems, whose objectives include incorporating the ecosystem approach and EBFM to fisheries managed by the Commission, as well as the oceanographic variables that affect the biology of tunas and their fisheries. The sub-committee on Ecosystems has acknowledged the effects of the environment on tuna populations, and is working with large-scale oceanographic models to better understand the relationships between the environment and tuna abundance and distribution, which can be used to better integrate ecosystem considerations into the scientific advice provided to the Commission. Within the ICCAT, there is a system of regular assessment, data collection, sharing of information as well as agreement over new and expanded management initiatives through the adoption of ICCAT Conservation and Management Measures. **SG80 is met**.

The fishery has two policies that relate to shark bycatch and turtle bycatch, but this cannot be construed as a strategy nor partial strategy. Therefore, **SG100 is not met**.

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

Rationale

ICCAT Recommendations are currently in place which are designed to reduce and limit catches and fishing effort of target fleets; these are plausible measures by which the impact of fishing on the ecosystem can be limited and the likelihood of ecosystem linkages being broken or losing normal function due to the removal of keystone species can be minimised. There is an objective basis for confidence that the measures currently in place will work, especially considering that they are developed as per best-current scientific advice that take into account as far as possible uncertainties in the available data, are endorsed by ICCAT scientific working groups based on research validating many of the recommendations leading to the measures, therefore **SG80 is met**. There is no fishery-specific data that can be used to evidence with high confidence that the strategy will work. Therefore, **SG100 is not met**.

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

Rationale

Compliance with ICCAT Recommendations and Resolutions is monitored via the UoAs self-reporting and independent observer programme and this is reported in annual national reports to ICCAT. ICCAT has stated vague conceptual objectives pertaining to non-target species in several adopted management measures (Juan-Jorda, et al., 2017). Nonetheless, without the validation from observer data and other indicators, there is no way to evidence that the measures are being implemented successfully within this fishery. **SG80 is not met**.

References:

Carruthers, T. R., Huynh, Q. C. & Taylor, N. G., 2024. *Ecotest Phase III: Simulation Testing Ecosystem Indicators,* s.l.: International Commission for the Conservation of Atlantic Tunas: Standing Committee of Research and Statistics (SCRS).

Juan-Jorda, M. J. et al., 2017. Report card on ecosystem-based fisheries management in tuna regional fisheries management organisations. *Fish and Fisheries,* 19(2), pp. 321-339.

Overall Performance Indicator (PI) Rationale	
Draft scoring range	**60-79**
Information gap indicator	**Information sufficient to score PI**

PI 2.5.3 – Ecosystem information

PI 2.5.3		There is adequate knowledge of the impacts of the UoA on the ecosystem		
Scoring Issue		SG 60	SG 80	SG 100
a	Information quality			
	Guide post	Information is adequate to **identify** the key elements of the ecosystem.	Information is adequate to **broadly understand** the key elements of the ecosystem.	
	Met?	Yes	No	

Rationale

Key elements in this ecosystem have been identified to be the target species of tuna and the associated species engaged in trophic interactions with these tuna stocks (including elasmobranchs, marine mammals, and teleosts). The results of Carruthers et., al. (2024) indicate that historical fishing mortality in the longline fishery is positively correlated to eight combinations (e.g., between SWO-BSH and between SMA-BET) (Carruthers, et al., 2024). Although not specifically designed to manage impacts on the ecosystem, the range of measures in place is considered to represent a strategy that works to achieve the intended outcome, as it is strictly confined to the epipelagic zone of the water column (see PI 2.4.1); **SG60 is met**.

SG80 is not met due to the absence of fishery-specific observer data to determine the direct impacts of the UoA on the ecosystem.

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

Rationale

There is sufficient information available from other similar fisheries operating in the same areas, but these have not been investigated in detail for the fishery under assessment. Therefore, only **SG60 can be met**.

c	Understanding of component functions			
	Guide post		The main functions of the components (i.e., P1 target species, primary, secondary and ETP species and Habitats) in the ecosystem are **known**.	The impacts of the UoA on P1 target species, primary, secondary and ETP species and Habitats are identified and the main functions of these components in the ecosystem are **understood**.
	Met?		Yes	No

Rationale

Estimates of the main functions of the components (P1 target species, primary, secondary and ETP species) have been made using previous MSC assessment reports for similar fisheries. However, main functions of the components from the fishery under assessment are not known because there is zero third-party observer data and limited fisher logbook information to verify. **SG80 is met**.

Although UoA is generally known as epipelagic fishery, we lack fishery-specific observer data to determine if the main functions of the components in the ecosystem are “understood”, **SG100 is not met**.

d	Information relevance			
	Guide post		Adequate information is available on the impacts of the UoA on these components to allow some of the main consequences for the ecosystem to be inferred.	Adequate information is available on the impacts of the UoA on the components **and elements** to allow the main consequences for the ecosystem to be inferred.
	Met?		Yes	No

Rationale

Estimates of the impacts of the UoA on the ecosystem components have been made using previous MSC assessment reports from similar fisheries operating in the Atlantic Ocean using longline fishing gears to

target tuna stocks (DiNardo, et al., 2022; Jones, et al., 2024). Therefore, adequate information is available on the impacts of the UoAs on ecosystem components (e.g. target, non-target, ETP species and habitats) for the UoA fleet to ensure that the main consequences for the ecosystem of commercial fishing operations can be estimated.. **SG80 is met**. However, impacts of the UoA on some components and ecosystem elements are not yet sufficiently understood to allow all of the main consequences for the ecosystem to be inferred. Therefore, **SG100 is not met**.

e	Monitoring			
	Guide post		Adequate data continue to be collected to detect any increase in risk level.	Information is adequate to support the development of strategies to manage ecosystem impacts.
	Met?		Yes	No

Rationale

Information on target and non-target species (bycatch and ETP species) is collated by the ICCAT through the collection of logbook data and its regional observer programme. The ICCAT SCRS and Sub-Committee on Ecosystems aims to use this data to review and analyse matters relevant to target, by-product, bycatch and ETP species, which are affected by ICCAT fisheries for tuna and tuna-like species (i.e. sharks, marine turtles, seabirds, marine mammals and other fishes), as well as the ecosystems in which they operate; and to develop mechanisms which can be used to better integrate ecosystem considerations into the scientific advice provided by the SC to the Commission. Although the at-sea observer data is not comprehensive for this fishery, the scale of the UoA is such that inferences can be made from the monitoring that does take place and determine whether the fishery poses any increased risk to the ecosystem. **SG80 is therefore met**. A cohesive strategy to manage ecosystem impacts cannot be verified at this stage. Therefore, **SG100 is not met**.

References

Carruthers, T. R., Huynh, Q. C. & Taylor, N. G., 2024. *Ecotest Phase III: Simulation Testing Ecosystem Indicators,* s.l.: International Commission for the Conservation of Atlantic Tunas: Standing Committe of Research and Statistics (SCRS).

DiNardo, G., Bodsworth, A. & Ahlers, B., 2022. *Tri Marine Atlantic albacore (Thunnus alalunga) longline fishery,* Emeryville: SCS Global Services.

Jones, H., Scarcella, G., Emery, T. & des Clers, S., 2024. *Consolidated Atlantic Ocean albacore tuna longline fishery,* Lymington: Control Union UK.

Overall Performance Indicator (PI) Rationale	
Draft scoring range	**60-79**
Information gap indicator	**More information sought to score PI**

Principle 3

4.4.3 Principle 3 background

Jurisdictions, legal and customary frameworks

The vessels in this fishery are all registered by China and Namibia, using drifting longlines to target the following species: north and south Atlantic albacore (*Thunnus alalunga*), yellowfin tuna (*T. albacares*), bigeye tuna (*T. obesus*), and north and south Atlantic swordfish (*Xiphias gladius*). All species are highly migratory and found in the tropical, temperate and cool waters of the Atlantic Ocean. All species are well-managed by the Regional Fisheries Management Organisation, the International Commission for the Conservation of Atlantic Tunas (ICCAT). The fishery operates on the high seas of the Atlantic Ocean and does not operate within regional exclusive economic zones (EEZs).

A range of different fisheries and fishing gears are used to exploit the stocks of these target species, including pelagic longline, pole-and-line, purse seine, handline, harpoon and buoy gear. However, this fishery uses longline gears only.

The vessels in the fishery land in the West African port of Dakar, Senegal. Therefore, as the fishery operates exclusively on the high seas, the jurisdiction and management authority responsible for this fishery is shared across both the ICCAT, and relevant flag states of China and Namibia, under the China Overseas Fisheries Association (COFA) and the Ministry of Fisheries and Marine Resources (MFMR), respectively.

a. International Commission for the Conservation of Atlantic Tunas (ICCAT)

ICCAT is the principal Regional Fisheries Management Organisation (RFMO) responsible for the sustainable management of highly migratory tuna, tuna-like and associated pelagic species taken in the fishery's UoA. The Convention area include all waters of the Atlantic Ocean, including the adjacent seas. ICCAT, or the Commission, oversees the conservation and management of a variety of Atlantic marine species and adopts measures to minimize bycatch of turtles and seabirds associated with these fisheries. Contracting Parties and Cooperating non-Contracting Parties, Entities, and Fishing Entities (collectively referred to as CPCs) work together to enable progress towards ICCAT's sustainable fishery objectives with a focus on target fish stock biology, estimates of stock abundance, and associated research, data collection and analysis for population assessments and trends for both target and key bycatch species caught incidentally, such as sharks.

The current conservation and management recommendations of ICCAT include total allowable catches, sharing arrangements for member countries, minimum size limits, effort controls, time/area closures, trade measures, compliance measures, and monitoring and inspection programs. Current member countries of ICCAT include Albania, Algeria, Angola, Barbados, Belize, Brazil, Canada, Cabo Verde, **China**, Côte d'Ivoire, Curaçao, Egypt, El Salvador, Equatorial Guinea, European Union, France, Gabon, Ghana, Guatemala, Guinea, Honduras, Iceland, Japan, Liberia, Libya, Morocco, Mauritania, Mexico, **Namibia**, Nicaragua, Nigeria, Norway, Panama, Philippines, Republic of Korea, Russian Federation, Saint Vincent/Grenadines,

Sao Tome and Principe, Senegal, Sierra Leone, South Africa, Syrian Arab Republic, Trinidad and Tobago, Tunisia, Turkey, United Kingdom, United States of America, Uruguay, Vanuatu, Rep. of Venezuela. Cooperating States include Bolivia, Guyana, Suriname, and Taiwan.

Within the Commission, ICCAT is also home to a series of key advisory committees and working groups (Figure 20), including:

- Standing Committee on Finance and Administration (STACFAD)
- Standing Committee on Research and Statistics (SCRS)
- Advisory Panels
- Conservation and management measures Compliance Committee (CoC)
- Permanent Working Group (PWG)
- Standing Working Group on Dialogue between Fisheries Scientists and Managers (SWGSM)

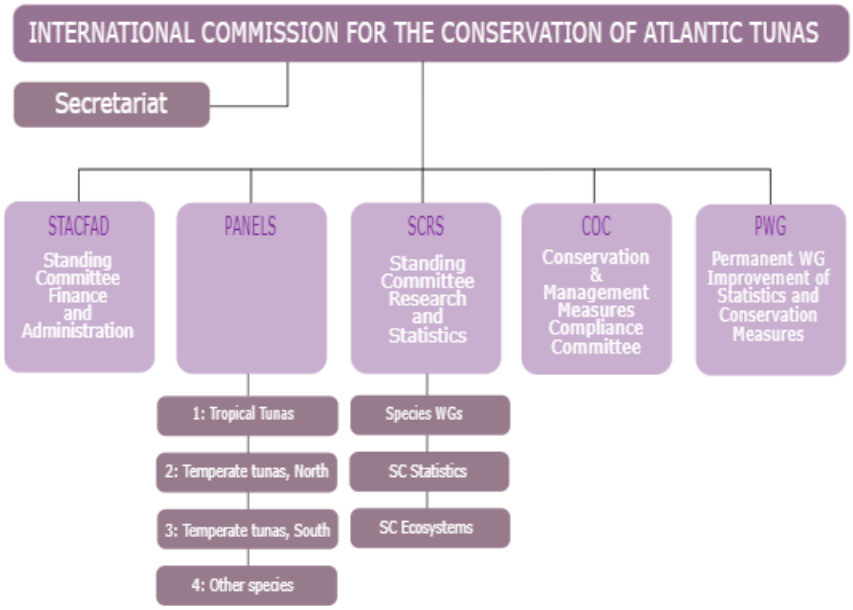

Figure 20: Organigram depicting the various roles and associated responsibilities of the different components within the Commission

ICCAT imposes a plethora of tuna fishery-specific management objectives, which can be found in the relevant Recommendations of the Commission. A list of current and relevant ICCAT Recommendations can be found below.

Table 11: List of ICCAT Recommendations pertinent to the fishery under assessment. Source: ICCAT·CICTA·CICAA

ICCAT Recommendation	Title

23-18	Recommendation by ICCAT to establish minimum standards and programme requirements for the use of electronic monitoring systems (EMS) in ICCAT fisheries
23-17	Recommendation by ICCAT amending Recommendation 18-09 on port state measures to prevent, deter and eliminate illegal, unreported, and unregulated fishing.
23-16	Recommendation by ICCAT amending Recommendation 21-13 on establishing a list of vessels presumed to have carried out illegal, unreported and unregulated fishing activities
23-13	Supplemental Recommendation by ICCAT amending Recommendation 22-12 on the bycatch of sea turtles caught in association with ICCAT fisheries
23-11	Recommendation by ICCAT to replace Recommendation 19-08 on management measures for the conservation of the south Atlantic blue shark caught in association with ICCAT fisheries
23-10	Recommendation by ICCAT to replace Recommendation 19-07 on management measures for the conservation of north Atlantic blue shark caught in association with ICCAT fisheries
23-06	Recommendation by ICCAT amending the Recommendation 21-04 on conservation and management measures, including a management procedure and exceptional circumstances protocol for north Atlantic albacore.
23-04	Recommendation by ICCAT replacing Recommendation 22-03 extending and amending Recommendation 17-02 for the conservation of north Atlantic swordfish
23-03	Recommendation by ICCAT on Senegal's bigeye tuna payback plan
23-01	Recommendation by ICCAT extending and amending Recommendation 22-01 on a multi-annual conservation and management programme for tropical tunas
22-14	Recommendation by ICCAT to replace Recommendation 06-14 to promote compliance by nationals of contracting parties, cooperating non-contracting parties, entities, or fishing entities with ICCAT conservation and management measures

22-12	Recommendation by ICCAT on the bycatch of sea turtles caught in association with ICCAT fisheries (combine, streamline and amend Recommendations 10-09 and 13-11)
22-11	Recommendation by ICCAT on the conservation of the south Atlantic stock of shortfin mako caught in association with ICCAT fisheries
22-06	Recommendation by ICCAT on the southern Atlantic albacore catch limits for the period 2023-2026
22-04	Recommendation by ICCAT replacing supplemental Recommendation 21-03 extending and amending Recommendation 17-03 for the conservation of south Atlantic swordfish
22-01	Recommendation by ICCAT replacing Recommendation 21-01 on a multi-annual conservation and management programme for tropical tunas
21-24	Recommendation by ICCAT replacing Recommendation 03-20 on criteria for attaining the status of cooperating non-contracting party, entity or fishing entity in ICCAT
21-20	Recommendation by ICCAT to continue the development of an integrated online reporting system
21-15	Recommendation by ICCAT on transshipment
21-14	Recommendation by ICCAT amending Recommendation 13-13 concerning the establishment of an ICCAT record of vessels 20 metres in length overall or greater authorised to operate in the convention area.
21-11	Recommendation by ICCAT amending Recommendation 19-08 on management measures for the conservation of south Atlantic blue shark caught in association with ICCAT fisheries
21-10	Recommendation by ICCAT amending Recommendation 19-07 on management measures for the conservation of north Atlantic blue shark caught in association with ICCAT fisheries
21-09	Recommendation by ICCAT on the conservation of north Atlantic stock of shortfin mako caught in association with ICCAT fisheries

21-04	Recommendation by ICCAT on conservation and management measures, including a management procedure and exceptional circumstances protocol for north Atlantic albacore
19-11	Recommendation by ICCAT on abandoned, lost, or otherwise discarded fishing gear
19-09	Recommendation by ICCAT on vessel sightings
19-05	Recommendation by ICCAT to establish rebuilding programs for blue marlin and white marlin
19-01	Recommendation by ICCAT on fishes considered to be tuna and tuna-like species or oceanic, pelagic, and highly migratory elasmobranchs
18-10	Recommendation by ICCAT concerning minimum standards for vessel monitoring systems in the ICCAT convention area
18-09	Recommendation by ICCAT on port state measures to prevent, deter, and eliminate illegal, unreported, and unregulated fishing
18-07	Recommendation by ICCAT to amend ICCAT reporting deadlines in order to facilitate an effective and efficient compliance process
18-06	Recommendation by ICCAT amending Recommendation 16-13 on improvement of compliance review of conservation and management measures regarding sharks caught in association with ICCAT fisheries.
18-05	Recommendation by ICCAT on improvement of compliance review of conservation and management measures regarding billfish caught in the ICCAT convention area.
17-03	Recommendation by ICCAT amending Recommendation for the conservation of south Atlantic swordfish Rec.16-04
17-02	Recommendation by ICCAT amending Recommendation for the conservation of south Atlantic swordfish Rec.16-03
16-19	Recommendation by ICCAT for the development of an online reporting system
16-14	Recommendation by ICCAT to establish minimum standards for fishing vessel scientific observer program

15-07	Recommendation by ICCAT on the development of harvest control rules and of management strategy evaluation
15-06	Recommendation by ICCAT on porbeagle caught in association with ICCAT fisheries
14-08	Recommendation by ICCAT to support effective implementation of Recommendation 12-07 by ICCAT for an ICCAT scheme for minimum standards for inspection in port
14-07	Recommendation by ICCAT on access agreements
13-12	Recommendation by ICCAT on the rules of procedure for the Standing Committee on Research and Statistics (SCRS)
12-09	Recommendation by ICCAT on a process towards the establishment of a catch certification scheme for tuna and tuna-like species
11-10	Recommendation by ICCAT on information collection and harmonisation of data on bycatch and discards in ICCAT fisheries
11-09	Supplemental Recommendation by ICCAT on reducing incidental bycatch of seabirds in ICCAT longline fisheries
11-08	Recommendation by ICCAT on the conservation of silky sharks caught in association with ICCAT fisheries
10-08	Recommendation by ICCAT on hammerhead sharks (family Sphyrnidae) caught in association with fisheries managed by ICCAT
10-07	Recommendation by ICCAT on oceanic whitetip shark caught in association with fisheries managed by ICCAT
09-07	Recommendation by ICCAT on thresher sharks caught in association with fisheries managed by ICCAT
08-09	Recommendation by ICCAT to establish a process for the review and reporting of compliance information
07-07	Recommendation by ICCAT on reducing incidental bycatch of seabirds in longline fisheries
06-13	Recommendation by ICCAT concerning trade measures

03-12	Recommendation by ICCAT concerning the duties of Contracting Parties and Cooperating non-Contracting Parties, Entities or Fishing Entities in relation to their vessels in the ICCAT Convention area

The Recommendations are typically made and addressed during the Commission's annual meeting, which takes place in November. The results of the Recommendations usually lead to the development of conservation management measures (CMMs) which are applicable to all contracting and cooperative non-contracting parties (CPCs), unless an objection has been made.

The roles and responsibilities of the Commission and its subsidiary bodies, of the Secretariat and the Contracting Parties (CPCs) are all defined in the ICCAT Convention. The Commission may invite any appropriate international organisation and any non-member Government that is a member of the UN to send observers to meetings of the Commission and its subsidiary bodies. ICCAT Commission meetings provide the consultative mechanism for the CPCs to agree management measures and share information through annual national reports. Annual reports include feedback on technical measures, local knowledge and other matters pertinent to management to be reviewed in Commission meetings and included in its reports. The ICCAT Manual 21 provides an organisational chart and explicitly describes the functions, roles and responsibilities of the various ICCAT subsidiary bodies.

All ICCAT meetings are advertised thoroughly and well in advance of the date to ensure participation of relevant stakeholders and interested parties. The scientific process within the various working groups of ICCAT are consultative and open for discussion during the relevant meetings.

NGOs are welcomed to ICCAT meetings as important members in both the observer and participatory roles if they support the objectives of ICCAT.

The main objective of ICCAT is 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". Whilst explicit mention of the precautionary approach is absent from the Convention Text, it is mentioned in the adoption of two resolutions consistent with the UNFSA and the FAO Code of Conduct for Responsible Fisheries, including:

Apply and ecosystem-based approach to fisheries management (Resolution 15-11)

Use a precautionary approach in implementing ICCAT conservation and management measures (Resolution 15-12)

Clear long-term objectives to guide management consistent with MSC Principles and Criteria and the precautionary approach, are explicit within ICCAT's management policy. Long-term objectives for sharks are also high on the ICCAT priority list and management measures.

Namibia

Ministry of Fisheries and Marine Resources (MFMR)

The Ministry of Fisheries and Marine Resources (MFMR) in Namibia introduced the Marine Resources Act in 2000, which provides the national legal framework to which all fisheries operating in the waters must adhere. The Act also permits fisheries agreements with countries in the Southern Africa Development Community.

Namibia is a participating member of ICCAT and has ratified both the United National Convention on the Law of the Sea (UNCLOS) and the United Nations Fish Stock Agreement (UNFSA).

The MFMR also introduced the Marine Resources Policy (2004). The Policy largely relates to local small pelagic fisheries for hake, pilchard, mackerel etc. and briefly describes the resource management of large pelagics, mainly relating the management to the requirements of ICCAT. However, the Policy goes on to describe the participation of the stakeholders and other interested parties in the development of fishery management measures, as well as the rights of fishers operating within Namibia. The legal framework of the Policy also describes the management measures in place within the EEZ, including MCS requirements, and compliance and enforcement initiatives. Finally, the Policy proceeds to describe the interest in local, Namibian fishers' interests and promoting employment and opportunities for sustainable fishing operations in Namibia. This also includes building national capacity for on-the-job training for Namibians onboard fishing vessels and in processing plants.

The Benguela Current Convention

The Benguela Current is a highly productive temperate marine upwelling system and associated large marine ecosystem off the west coast of Southern Africa. The Benguela Current Convention (BCC) is a formal treaty between the governments of Angola, Namibia and South Africa that sets out the countries' intent "to promote a coordinated regional approach to the long-term conservation, protection, rehabilitation, enhancement and sustainable use of the Benguela Current Large Marine Ecosystem, to provide economic, environmental and social benefits." 4 The governments of Angola, Namibia and South Africa signed the Benguela Current Convention in the Angolan city of Benguela on 18 March 2013.

The Benguela Current Convention also establishes the Benguela Current Commission (BCC), existing since 2007, as a permanent inter-governmental organisation. The commission recognises the need for a Large Marine Ecosystem concept of ocean governance – a move towards managing resources at the larger ecosystem level (rather than at the national level) and balancing human needs with conservation imperatives necessary to maintain the productivity and biodiversity of this unique ocean system. The BCC is based in Swakopmund, Namibia, and is focused on the management of shared fish stocks, environmental monitoring; biodiversity and ecosystem health.

South East Atlantic Fisheries Organisation (SEAFO)

The South East Atlantic Fisheries Organisation (SEAFO) is an intergovernmental fisheries science and management body with an aim to ensure the long-term conservation and sustainable use of all living marine resources in the South East Atlantic Ocean, safeguarding the environment and marine ecosystems.

Aligned with the UNCLOS and UNFSA, the Convention on the Conservation and Management of Fisheries Resources in the South East Atlantic Ocean is to ensure the long-term conservation and sustainable use of fishery resources.

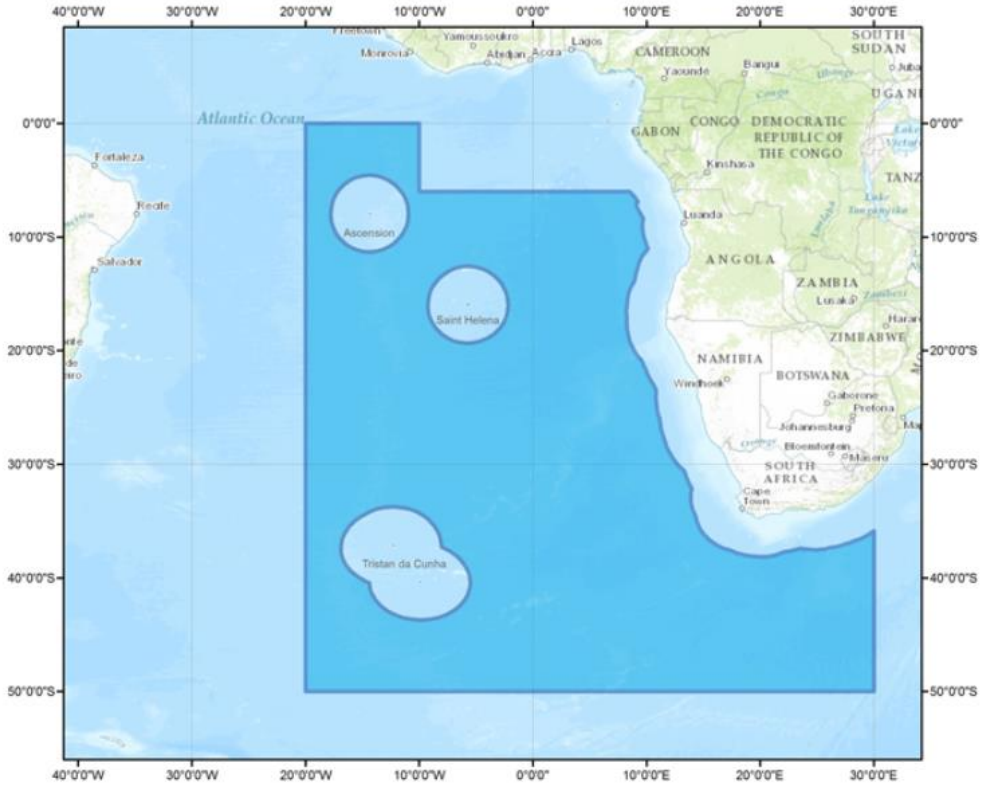

Figure 21: Map of area under the jurisdiction of SEAFO. Source: http://www.seafo.org/

SEAFO employs an ecosystem and precautionary approach to fisheries management when deciding on management and conservation measures. Under guidance from the Scientific Committee, and Compliance Committee, SEAFO adopts monitoring, control, and surveillance (MCS) mechanisms and adopts resolutions based on best scientific advice. Measures to combat IUU fishing include an authorised vessel list, an established IUU vessel list, bans on fishing for certain species, including deep sea sharks, full reporting of shark catch, and regulations about shark fins. Management measures to reduce seabird and sea turtle bycatch rates have also been implemented across fisheries under SEAFO.

The MCS systems in place by SEAFO require all vessels to:

1. Be formally authorised to fish
2. Report catches on a 5-day interval
3. Report VMS positions at a 2-hour interval
4. Have an independent scientific observer onboard
5. Comply with port inspection procedures
6. Not make transshipments in the SEAFO Convention Area.

China

The People's Republic of China (PRC, henceforth referred to as China) is a formal member of the ICCAT committee and has agreed to abide by a range of international legally binding and non-binding treaties concerning fisheries which influence the domestic management framework. The overarching law for China's commercial fisheries management is the Fisheries Law of the People's Republic of China. The main purpose of the Fisheries Law is:

"This Law is enacted for the purpose of enhancing the protection, increase, development and rational utilization of fishery resources, developing artificial cultivation, ensuring fishery workers' lawful rights and interests and boosting fishery production, so as to meet the need of socialist construction and the people's needs."

The national fisheries law is supplemented by several other regulations and policies, including national and provincial level regulations such as the recently amended Administrative Regulation on Distant Water Fisheries, , High seas fishing vessels inspection measures, Notice on strengthening high seas transshipment managements, High seas fishing vessels VMS inspection measures, the 13th and 14th Five Year Plans for National Fisheries Development, and Notification to comply with International Tuna Measures.

Ministry of Agriculture and Rural Affairs (MARA)

At the national level, China's Ministry of Agriculture and Rural Affairs (MARA) takes charge of distant water fleets (DWF) nationwide, and is responsible for national planning, organisation and administration of China's DWF fleets. China's national level laws and policies for DWF are designed to ensure compatibility and consistency with international and regional level fisheries management objectives, as described by ICCAT.

There are no national fishery-specific objectives under the current China management framework for the fishery under assessment. National specific management objectives and targets are also not defined in relation to the P1 and P2 species. The specific tuna management regulations required by international and regional organizations are abided by Chinese longline tuna fleets operating in the ICCAT.

China Overseas Fisheries Association (COFA)

The China Overseas Fisheries Association (COFA) is a nationally registered group composed of fishing enterprises, research institutions, management bodies, and economic cooperation groups. Enterprises engaged in offshore/high seas fishing activities are required to enrol as members.

The responsibilities of monitoring, control, and surveillance (MCS) for Chinese fleets are shared between MARA, COFA, and the China High Seas Fisheries Data Centre at Shanghai Ocean University (SHOU). The MCS system allows the Chinese government to remotely monitor the movement of high seas vessels, as they are mandated to install VMS systems and guarantee that their VMS is operating whenever they are at sea.

A variety of sanctions are applied to those who do not comply with regulations, including:

- Fines;

- Confiscation of catch and/or gear, impoundment and disassembly of vessels;
- Suspension or revocation of subsidies (usually the annual fuel subsidy), fishing permits, high seas fishing rights;
- Inclusion on personnel or offshore vessel blacklist

The central government regularly publishes cases where sanctions have been applied to high seas vessels engaging in IUU fishing, which can be accessed on an official website.

For Chinese Distant Water Fishing Vessels, The Bureau of Fisheries (BoF) is the lead government agency responsible for the China high seas fishing fleets covering assessed fisheries and other high seas fisheries and is responsible for all aspects of high seas fisheries and fleet management. COFA is subcontracted by BOF to support the management of high seas fisheries acting as the governmental organisation; it is an industrial association for the Chinese distant water fishing industry. SHOU mainly acts as the technical advisor for the high seas fisheries management bodies and provides specific management functions under MARA and COFA's designation (for example logbook data collection and compliance verification). The Provincial BOF manages high seas fleets under its jurisdiction and implements enforcement for high seas vessels under the guidance of BOF.

China's high seas longline tuna fisheries management is subject to two review mechanisms. The first is the Five-Year Plans, which are developed by the central governments every five years for the high sea fisheries industry. The development of the Plan involves reviewing and evaluating the previous five years' achievements and gaps. An annual review is also conducted for the central and local government to track its progress on implementing the Five-year plan.

4.4.4 Principle 3 Performance Indicator scores and rationales

PI 3.1.1 – Legal and/or customary framework

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

Rationale

There are three key jurisdictions for the management of the fishery's resources, including the International Commission for the Conservation of Atlantic Tunas (ICCAT), and the two ministries of the vessels' flag-states, the Ministry of Fisheries and Marine Resources (MFMR) in Namibia and the China Overseas Fishing Authority (COFA). The overarching authority of the high seas Atlantic fisheries is the ICCAT. There are no coastal states' authorities considered in this pre-assessment as the fishery operates exclusively on the high seas.

ICCAT

The main aim of ICCAT is 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*". In an effort to meet the objectives of the Commission, it outlines the legal framework in the Convention (2007) that establishes the international and legal structure for the management of tuna and tuna-like species. Namibia and China have been contracting parties since 1999, and 1996, respectively.

The conservation management measures (CMMs) that derive from the Recommendations made by the ICCAT annual meetings are directly related to the improvement and sustainability of tuna stocks, including those that are the target species in this fishery (yellowfin, bigeye, and albacore) and tuna-like species (including swordfish and other highly migratory pelagics, including sharks). These measures directly relate to the improvement of both Principle 1 and Principle 2 species observed in this fishery SG60 is met.

ICCAT's cooperation mechanisms are consistent with Article 10 of UNSFA and are effective. ICCAT facilitates the collection and dissemination of data and develops management and recovery strategies for targeted and minor primary fish as well as species impacted by the fishery.

The effective and organised cooperation between ICCAT and its members is clear as a result of the integration of the CMMs into regional management when they become effective after 6 months SG80 is met. Both China and Namibia have clearly demonstrated their long-term commitment to the ICCAT, however, as some of the management system are non-binding, this SI cannot meet SG100.

Namibia

As a member of ICCAT, it has ratified both UNCLOS and UNFSA. The country's Marine Resources Act (2000) provides an effective legal framework and allows for fisheries agreements with countries of the Southern Africa Development Community. The Act is broad and covers all marine biological resources, incorporating the Seabirds and Seals Protection Act of 1973, and describing the involvement and participation in the international and regional fisheries activities to demonstrate the consistency with international obligations from ICCAT. The Namibian fisheries legislation provides the guidelines for basic fisheries issues, including:

1. Sustainable Utilisation of Marine Resources
2. Management and Conservation Measures
3. Compliance and Enforcement
4. Offences and Penalties
5. Regulatory Powers

Likewise, the Marine Resources Policy (2004) also describes the specific legal framework in place for Namibian fisheries.

Therefore, there is a clear legal framework and demonstrable cooperation of this within Namibian fisheries management related to Principle 1 and Principle 2 management components. **SG 60 is met.**

Namibia is a member of the South East Atlantic Fisheries Organisation (SEAFO) SEAFO is an intergovernmental fisheries science and management body with the primary aim of ensuring long-term conservation and sustainable use of all living marine resources in the South East Atlantic Ocean, including the environment and marine ecosystems. SEAFO actively employs the ecosystem and precautionary approach to fisheries management when deciding on management and conservation measures. Likewise, SEAFO also adopts measures to combat IUU fishing and protect vulnerable marine species, including sharks, seabirds and turtles.

Further, Namibia is also a participant of the South African Development Community (SADC). One of the programmes at SADC involves marine fisheries management under the 2001 SADC Protocol on Fisheries. The aim of the Protocol is to promote responsible and sustainable use of the living aquatic resources and aquatic ecosystems of interest to State Parties, in order to (i) promote and enhance food security and human health, (ii) safeguard the livelihood of fishing communities, (iii) generate economic opportunities from nationals in the region, (iv) ensure that future generations benefit from these renewable resources; and (v) alleviate poverty with the ultimate objective of its eradication.

Therefore, there is clear cooperation between Namibia and other parties to deliver management outcomes consistent with MSC Principle 1 and 2 requirements. **SG80 is met.**

At this stage, it is unclear if these cooperatives are binding, and with some CMMs from ICCAT being explicitly non-binding, **SG100 cannot be met.**

China

As a member of ICCAT, China has also ratified UNCLOS (1996) but not UNFSA. Nevertheless, the nation is still bound by the requirements of the UNCLOS and the ICCAT for any operations that take place within the Convention Area.

The principle fisheries legislation for China is the Fisheries Law of the People's Republic of China (China Fisheries Law) (2000), which extends to all fishing operations, including domestic and overseas fisheries on the High Seas and within EEZs (Ministry of Ecology and Environment: The people's Republic of China, 1986, amended 2000)). The China Fisheries Law describes all functions related to controlling fishing operations and the use of specific enforcement and prosecution provisions. The Law emphasises the need for:

1. Resource management: sustainable use of fishery resources
2. Licensing and quotas
3. Monitoring and enforcement
4. Alignment with international agreements.

There is also a Fisheries Bureau under the Ministry of Agriculture and Rural Affairs (MARA), which is considered to be the main body responsible for fisheries management. Within MARA, there are various

policies in place aimed at encouraging the sustainable management, conservation, and development of fishery resources.

For its 1,600 vessel strong overseas fishing effort, the China Overseas Fishing Association (COFA) was established and is the lead representative in the development of the nation's distant water fisheries sector. COFA, is responsible for the compliance of China's overseas fleets and recently introduced a national distant water fishing vessel performance evaluation framework, which includes performance indicators and objectives related to the effective coordination with other parties to achieve sustainability objectives. These include national, provincial, and more local arrangements.

Therefore, there is a clear, effective national legal system with many different subdivisions that are well organised and both nationally and internationally collaborative, with the aim of ensuring sustainability of natural resources (MSC Principles 1 and 2). **SG80 is met**. At this stage, it is unclear if these cooperatives are binding, so **SG100 is not met**.

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

Rationale

<u>ICCAT</u>

At ICCAT, commission members can present written objections to recommendations under specific circumstances:

- If it is inconsistent with the convention or international law
- If it unjustifiably discriminates against the objecting member

- If the member cannot practically comply
- If there are security constraints related to compliance

Parties involved in any dispute must engage in consultations to resolve the issue amicably and swiftly. If the dispute remains unresolved, it can be submitted to final and binding arbitration through a joint request. Procedures for resolving disputes are outlined in an annex, and disputes can also be addressed by an independent expert panel, the International Court of Justice, or the International Tribunal for the Law of the Sea. **SG60 and SG80 are met**

Namibia

As a cooperating member of ICCAT, there are two routes available for the resolution of any disputes that may arise: 1. ICCAT directly, and 2. national state management system. The details of ICCAT's dispute resolution mechanism can be found above.

For Namibia, the Marine Resources Act of 2000 notes in Part IV, 12f, that the management board will serve as the body of appeal in any disciplinary matter or point of dispute in matters relating to staff of the agency – referring to the fisheries observer agency. The national judicial system is expected to serve as a mechanism in certain disputes. **SG 60 is met**. As there have not been any reported legal challenges that the MFMR have to deal with, it is indicated that the existing mechanism is appropriate and considered to be effective in resolving any issues arising from the fishery in Namibia. Thus, **SG80 is met**.

China

Like Namibia, China, as a cooperating member of ICCAT, has two routes available for the resolution of any disputes that may arise: 1. ICCAT directly, and 2. national state management system. The details of ICCAT's dispute resolution mechanism can be found above.

China's comprehensive fisheries regulatory policy framework as described in PI 3.1.1a, is equipped with the required protocols for any disputes that may arise. In the Fisheries Law, the only reference to the resolution of disputes is in regard to aquaculture practices, but COFA is said to retain all the relevant information on dispute resolution for overseas fishing vessels. At this stage of the pre-assessment, specific information from COFA could not be identified.

In 2024, research conducted on the current fishery dispute resolution mechanisms employed by China indicated that they were ineffective and insufficient for overseas fishing disputes. Focussed mainly on fisheries in the Pacific Ocean, the research showed that "there is a lack of specific provisions on the settlement of fishery conflicts" in China. The research continued to describe the current conflicts within the Chinese overseas fleet, largely associated with neighbouring coastal states, including South Korea and Japan. Whilst there was no indication in the report about potential unresolved disputes with nations in the Atlantic Ocean, the lack of action with the neighbouring disputes suggests that even if there is a resolution mechanism in place, disputes are not being adequately resolved (Zhu & Xu, 2024).

At this stage of the pre-assessment, there is evidence to demonstrate that a dispute resolution mechanism does exist and is considered to be effective. **SG80 is met**.

C	Respect for rights			
	Guide post	The management system has a mechanism to **generally respect** the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to **observe** the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to **formally commit** to the legal rights created explicitly or established by custom of people dependent on fishing for food and livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.
	Met?	ICCAT: Yes Namibia: N/a (flag state) China: N/a (flag state)	ICCAT: Yes Namibia: N/a (flag state) China: N/a (flag state)	ICCAT: No Namibia: N/a (flag state) China: N/a (flag state)

Rationale

Flag state is not scored here, as this SI is less relevant to the vessel's flag state. This is because the vessels are operating outside of their own EEZ, where the international management system dominates over the national system for fishery management. The most crucial requirement for all operated vessels is to comply with is international regulations, although national customary rights may still exist

ICCAT

ICCAT Resolution 15-13 specifically addresses the "Criteria for Allocation of Fishing Possibilities" to CPCs. It recognizes the priority interests of artisanal, subsistence, and small-scale coastal fishers, as well as coastal fishing communities, coastal states, and regions dependent on fishing. The resolution also considers fisheries on the High Seas and the economic and/or social importance of the fishery for participants whose vessels have traditionally operated in the Convention area.

The management system therefore has a mechanism to observe the legal rights of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2. **SG80 is met**.

Overall Performance Indicator (PI) Rationale	
Draft scoring range	**Total: ≥80** ICCAT: ≥80
Information gap indicator	**Information sufficient to score PI**

PI 3.1.2 – Consultation, roles and responsibilities

PI 3.1.2				
		The management system has effective consultation processes that are open to interested and affected parties **The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties**		
Scoring Issue		SG 60	SG 80	SG 100
a	Roles and responsibilities			
	Guide post	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are **generally understood**.	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are **explicitly defined and well understood for key areas** of responsibility and interaction.	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are **explicitly defined and well understood for all areas** of responsibility and interaction.
	Met?	ICCAT: Yes Namibia: Yes China: Yes	ICCAT: Yes Namibia: Yes China: Yes	ICCAT: No Namibia: No China: No

Rationale

ICCAT

The ICCAT Convention clearly defines the roles and responsibilities of the Commission, the Secretariat, and the Contracting and cooperating non-contracting parties (CPCs). All annual meetings are advertised to willing participants and stakeholders, and attendee lists are published and publicly available on the ICCAT website along with the meeting summary and outcomes. The final reports from the meetings clearly define the role and responsibilities of participating members. An organigram depicting the specific roles and associated responsibilities of ICCAT bodies, including the Standing Committee Finance and Administration (STACFAD), the various Panels, the Standing Committee Research and Statistics (SCRS), the Conservation and management measures Compliance Committee (COC), and the Permanent Working Group improvement on statistics and conservation measures (PWG) (Figure 20).

However, an evaluation of the sustainability of tuna stocks relative to MSC criteria was published by the International Seafood Sustainability Foundation (ISSF), in which the authors wrote that “Although roles within ICCAT and among its CPCs are well defined, these are not necessarily well understood by entities

within nations. This would have to be evaluated for each fishery" (Medley & Gascoigne, 2024). To evaluate this as per Namibia and China, who are both participating members of ICCAT and implement the resolutions on conservation and management measures, it could be argued that these nations are well versed in the understanding of roles and responsibilities within ICCAT. Therefore, **SG80 is met**.

Namibia

Namibia is part of the Port State Measures Agreement (PSMA) from the FAO, in which all entities have explicitly defined and well understood functions, roles and responsibilities.

The Marine Resources Act (2000) outlines the functions of fisheries inspectors and observers via the Fisheries Observer Agency. The Act also defines the functions of the Marine Resources Advisory Council. All information about the Directorates involved with the MFMR are clearly outlined on the Ministry's website. **SG80 is met**.

China

The Bureau of Fisheries (BOF) is responsible for the overall management of China's fisheries. Within China's fisheries management there are different industry associations and arrangements that work collaboratively to ensure China's national and overseas fisheries are well managed. China's Ministry of Agriculture and Rural Affairs (MARA) is responsible for China's distant water fleet, along with the China Overseas Fisheries Association (COFA). Both organisations are responsible for various legislative and regulatory requirements of Chinese-flagged vessels operating in the high seas and other EEZs, to ensure that they are aligned with the requirements of ICCAT and any other regional managing authorities.

China also utilises collaboration from the Ministry of Foreign Affairs, China Transport and Communications, the Shanghai Ocean University, and individual fishing companies. Working as a bridge between MARA and the fishing industry, COFA primarily functions to promote the requirements of MARA and Chinese fishing regulations to fishing companies operating overseas. Shanghai Open University (SHOU) also conducts research on distant water fisheries and fishing vessels and provides policy advice to China's delegations, including input on the implementation of electronic monitoring (EM) on overseas vessels to improve monitoring, control and surveillance (MCS).

Therefore, 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. **SG80 is met**.

b	Consultation processes			
	Guide	The management system includes consultation	The management system includes consultation	The management system includes consultation

	post	processes that **obtain relevant information** from the main affected parties, including local knowledge, to inform the management system.	processes that **regularly seek and accept** relevant information, including local knowledge. The management system demonstrates consideration of the information obtained.	processes that **regularly seek and accept** relevant information, including local knowledge. The management system demonstrates consideration of the information and **explains how it is used or not used**.
	Met?	ICCAT: Yes Namibia: Yes China: Yes	ICCAT: Yes Namibia: Yes China: Yes	ICCAT: No Namibia: No China: No

Rationale

ICCAT

ICCAT holds annual meetings of the Commission, to which all CPCs, stakeholders, NGOs and other interested parties can attend. Application for attendance from non-members (including NGSOs) must be granted, however once approved, all observers have access to the relevant information and reports.

The aim of the annual meetings is to inform all attendees of the current state of the fisheries and management measures in place within them, as well as to develop further agreements, Recommendations, and measures to improve these findings. Consultation and an extensive collaboration with scientists, managers, and stakeholders defines the decision making process. All relevant information presented is considered during the decision-making process and all meeting summaries and records of decisions are published to be publicly available, this includes stock assessments and other scientific papers. It is not always clear how this relevant information is used (or not used) during the decision-making process and in the implementation of new measures, therefore **SG100 is not met**. However, it is clear that within the annual meetings of the Commission and the regular meetings of the working groups throughout the year, the Commission regularly seeks and accepts relevant information. **SG 80 is met**.

Namibia

In Part VIII (Management and control measures), subsection 52, point (2) of the Marine Resources Act (2000), it is described how the Minister shall “after consultation with interested persons” establish objectives for the management of the reserve…”. Further, in Part IV (Fisheries Observer Agency), subsection 13, (3) the Minister is said to “consult with any trade associations which, in the opinion of the Minister, is representative of the fishing industry or of any branch of the fishing industry” when appointing a member to the managing board of the agency.

The Strategic Plan 2017/18-2021/22 published by MFMR in 2016 outlined the importance of engaging in a consultative workshop to develop the strategic objectives involved in the overall Plan. These objectives include:

1. Encourage scientific advice on the sustainable management of the marine ecosystem
2. Strengthen compliance with fisheries legislation
3. Develop blue economy policy and legal framework
4. Strengthen the development of aquaculture
5. Improve contribution of value added exports to national economy
6. Increase employment creation and the contribution to the national economy
7. Enhance organisational performance

During this consultative workshop, stakeholders were invited and expected to contribute and collaborate with the discussion (MFMR, 2017). Therefore, the management system demonstrates that is regularly seeks and accepts relevant information, including local knowledge. **SG80 is met.**

China

China is working to refine the stakeholder consultation requirements of its management system, and there are two regulations under the Fisheries Law on consultation with stakeholders. There are, reportedly, many consultation processes conducted by the government when designing fisheries management measures, during which time, consultation with industry stakeholders and researchers is conducted before establishing regulations. The findings from such consultation events are available online (SJTU, 2017).

The BOF reviews any new regulations or Acts that are presented by national or Provincial BOFs, during which time, it will also request the consult of local fishers to understand the implications to their livelihoods, which are then presented to the national or Provincial BOF. Consultation with SHOU and other external stakeholders is also common in the development of new regulations and Acts. However, the findings from these consultation periods are largely inaccessible to the public.

There have been instances where the government requests public consultation to the final regulation before it is officially published. The weight of this public consultation is unknown, and the encouragement from the government for the public to participate is minimal. However, it can be said that the management system generally includes consultation processes that seek information from stakeholders. **SG80 is met**.

	Participation

c	Guide post		The consultation process **provides opportunity** for all interested and affected parties to be involved.	The consultation process provides **opportunity and encouragement** for all interested and affected parties to be involved, and **facilitates** their effective engagement.
	Met?		ICCAT: Yes Namibia: Yes China: Yes	ICCAT: No Namibia: No China: No

Rationale

ICCAT

There is an established framework at the ICCAT for consultation across various levels of participation, ensuring that all CPCs, NGOs, and observers can actively participate in the decision-making process. As such, the ICCAT has seen an increase in the participation and engagement rates of participants over the last few years. This is also due to the clearly defined process for applicants to demonstrate their commitment to conservation and management measures at ICCAT, and for entry into becoming a CPC. Stakeholders wishing to participate in the SCRS and Commission meetings may also apply for grants/funding from ICCAT.

Opportunities for NGOs to participate could be further improved, although progress has been made (M (Medley & Gascoigne, 2024). Currently, ICCAT meetings are open to all stakeholders including NGOs and fisher groups, if they register and pay some administrative cost. ICCAT facilitates and encourages stakeholder engagement and provides training and support to states lacking capacity in data management and fisheries science. Fishermen's groups are also open to join ICCAT meetings and working groups, ensuring it is both inclusive and transparent. Therefore, this SI **meets SG 80**.

There is currently no information to demonstrate the active participation of these stakeholders, however, therefore **SG100 is not met** at this stage.

Namibia

The Strategic Plan 2017/18-2021/22 outlines the engagement of stakeholders in the development of the Plan (MFMR, 2017). The Plan lists and describes the stakeholders that were involved and the extent of their engagement in the development of the Plan. The majority of the stakeholders appear to be 1. Customers, including members of the fishing industry, aquaculture, small scale fishers, recreational fishers, and the general public; 2. OMAS, including office of the president, Cabinet, Parliamentarians and other OMAs; and 3. Staff members of MFMR, including employees and management. Therefore, it

appears that Namibia and the MFMR provides opportunity for all interested and affected parties to be involved. **SG80 is met**. There is no indication that a further Strategic Plan for 2022-onwards has been developed.

China

As mentioned in PI 3.1.2b, a variety of interested stakeholders are consulted during the development of new regulations and/or Acts, including researchers, fishers, and other key stakeholders. Further, the government will also extend a consultation period to the public for a comment on the final draft of a new regulation or Act. The extent to which the public comment is adhered is currently unknown. However, technically there is a mechanism available for comment if need be. China also participates in ICCAT meetings and associated consultations with the Commission. Therefore, as the consultation process is considered accessible to all relevant stakeholders, **SG80 is met**.

References

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MFMR, 2017. *Ministry of Fisheries and Marine Resources Strategic Plan - 2017/18-2021/22,* s.l.: Ministry of Fisheries and Marine Resources.

SJTU, 2017. *Research Base on National Marine Rights and Strategy: The meeting for the revision of the Fishery Law of the People's Republic.* [Online] Available at: https://colp.sjtu.edu.cn/CN/show.aspx?info_lb=11&info_id=1330&flag=11 [Accessed 9 October 2024].

Overall Performance Indicator (PI) Rationale	
Draft scoring range	**Total: ≥80** ICCAT: ≥80 Namibia: ≥80 China: ≥80
Information gap indicator	**Information sufficient to score PI**

PI 3.1.3 – Long term objectives

PI 3.1.3		The management policy has clear long-term objectives to guide decision-making that are consistent with MSC Fisheries Standard, and incorporates the precautionary approach		
Scoring Issue		SG 60	SG 80	SG 100
a	Objectives			
	Guide post	Long-term objectives to guide decision-making, consistent with the MSC Fisheries Standard and the precautionary approach, are **implicit** within management policy.	**Clear** long-term objectives that guide decision-making, consistent with MSC Fisheries Standard and the precautionary approach are **explicit** within management policy.	**Clear** long-term objectives that guide decision-making, consistent with MSC Fisheries Standard and the precautionary approach, are **explicit** within **and required by** management policy.
	Met?	ICCAT: Yes Namibia: Yes China: Yes	ICCAT: Yes Namibia: Yes China: Yes	ICCAT: No Namibia: No China: No

Rationale

ICCAT

The main aim of ICCAT is 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*". Therefore, all the related CMMs, Resolutions and Recommendations determined and implemented by the Commission are an extension of this objective to maintain MSY of tuna and tuna-like species. The Commission also uses the ecosystem and precautionary approach to fisheries management (Resolutions 15-11 and 15-12, respectively). Resolution 15-12 is explicit but not required by management, therefore **SG100 is not met**. However, the plethora of CMMs and Recommendations available and implemented by ICCAT on tuna and tuna-like species, including swordfish and sharks are evidence that there are clear long-term objectives in place within ICCAT management that are consistent with the MSC and precautionary approach to fisheries management. **SG80 is met**.

Namibia

The Marine Resources Act (2000) was established to "provide for the conservation of the marine ecosystem and the responsible utilisation, conservation, protection, and promotion of marine resources on a sustainable basis; for that purpose, to provide for the exercise of control over marine resources; and

to provide for matters connected therewith". However, the Act does not continue to explain the objectives and/or management measures in place to achieve this aim. Part VIII (Management and Control Measures) briefly describe the measures in place for the conservation of marine resources, for the control of harvesting, including:

a) The place and time in which harvesting operations may be conducted;
b) Species size, and other characteristics and quantity of marine resources that may be harvested;
c) Methods and gear that may be used; and
d) Measures to limit the amount of harvesting

However, specific details of these measures is not explained.

Under the Marine Resources Policy (2004), a brief mention of the allocation of quotas and licensing for applicant fishers is included. However, as with the Act, specific detail about the quotas or licensing requirements is excluded from the text (MFMR, 2004).

In Section 5 (General Principles, Objective and Strategies), subsection 5.3 (Strategies) of the Policy, the second objective is "Conservation and responsible management of marine resources". Further, subsection 5.4 (International Framework) continues to describe the international fisheries conventions that Namibia has subscribed to, including:

1. Agreement for the Implementation of the Provisions of the UNCLOS relating to the Conservation and Management of Fish Stocks and Highly Migratory Fish Stocks (UNFSA)
2. FAO agreement to promote compliance with international Conservation and Management Measures by Fishing Vessels on the High Seas (Compliance Agreement)
3. ICCAT
4. Convention on the Conservation of Antarctic Marine and Living Resources (CCAMLR)
5. FAO Code of Conduct for Responsible Fisheries; and
6. SADC Regional Protocol on Fisheries.

Therefore, Namibia is required to adhere to the major policies and measures of these entities. The annual strategic plan must hold goals and objectives with longer timeframe objectives and aims being delivered in the mandate, mission and vision of the organisation. Objectives are clear and explicitly defined with these strategic plans and required via the fisheries act. **SG80 is met.**

<u>China</u>

The Bureau of Fisheries (BOF) sets regular five-year goals and objectives in the Five-Year Plan for Economic and Social Development of the People's Republic of China. In the latest Plan (14th in the series), broad objectives relating to environmental, economic and social sustainability, including the development of a strong marine economy are outlined (MARA, 2022). These objectives also extend to the "long-range" through the year 2035. Article XXXIII "Actively expand the space for maritime economic development", Section 2. "Build a sustainable marine ecological environment" states that China aims to

“explore the establishment of a comprehensive management system that integrates coastal, river basin, and marine areas.” The 14th Plan also proceeds to mention that by 2023, the goal is to stabilize the annual high seas harvest volume at around 2.3 million tons, strengthen collaboration with other governments and regions on high seas fisheries, increase the capacity for monitoring, control, and surveillance in high seas fisheries, and improve compliance with international treaties. However, there is no indication if this goal was met for the 2023 harvest year. The 13th Five-Year plan includes a reference to limiting fishing effort and increasing RFMO regulation compliance for Chinese high seas vessels, protecting marine ecosystems and habitats to develop marine economy, support of high seas fishing product consumption domestically and achieving international certification (MOA, 2017).

The 14th Five-Year plan includes a reference to limiting fishing effort and increasing RFMO regulation compliance for Chinese high seas vessels, protecting marine ecosystems and habitats to develop marine economy, support of high seas fishing product consumption domestically and achieving international certification. Therefore, there are clear, long-term objectives for guiding decision making that are consistent with the MSC Fisheries Standard and a precautionary approach. **SG80 is met**.

References

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MOA, 2017. *"13th Five-Year Plan" national distant-water fisheries development plan,* s.l.: Ministry of Agriculture.

MARA, 2022. *Opinions of the Ministry of Agriculture and Rural Affairs on promoting the high-quality development of distant-water fisheries during the 14th Five-Year Plan,* s.l.: Ministry of Agriculture and Rural Affair.

Overall Performance Indicator (PI) Rationale	
Draft scoring range	**Total: ≥80** ICCAT: ≥80 Namibia: ≥80 China: ≥80

Information gap indicator	**Information sufficient to score PI**

PI 3.2.1 – Fishery-specific objectives

PI 3.2.1		The fishery-specific management system has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2		
Scoring Issue		SG 60	SG 80	SG 100
a	Objectives			
	Guide post	**Objectives**, which are broadly consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are **implicit** within the fishery-specific management system.	**Short and long-term objectives**, which are consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are **explicit** within the fishery-specific management system.	**Well defined and measurable short and long-term objectives**, which are demonstrably consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are **explicit** within the fishery-specific management system.
	Met?	ICCAT: Yes Namibia: N/a (flag state) China: N/a (flag state)	ICCAT: Yes Namibia: N/a (flag state) China: N/a (flag state)	ICCAT: No Namibia: N/a (flag state) China: N/a (flag state)

Rationale

This PI seeks information about specific management objectives designed to achieve outcomes expressed in MSC's Principles 1 and 2; and whether these objectives are implicit, explicit and/or well defined and measurable. As this fishery is occurring on the high seas, therefore the fishery specific objective would focus on high seas requirement as that is the regulations that all vessels fishing under such jurisdiction need to comply with (ICCAT). National level fishery specific objectives are therefore not considered here, and scoring is not applicable.

ICCAT

ICCAT is responsible for the overview and management of Atlantic Ocean tuna stocks and therefore the management measures in place are, naturally, long-term due to the persistent exploitation of the tuna stocks.

The ICCAT SCRS conduct stock assessment on major fish stocks in the jurisdiction, including yellowfin, bigeye, albacore (north and south Atlantic), as well as tuna-like species including swordfish (north and south Atlantic) every three years. Using the results and advice from the assessments, the RFMO implements a series of measures that are designed to improve or maintain the health of the stocks, via

annual total allowable catch (TACs) and quota allocations (for tunas). Some of the tunas have specific harvest strategies to prevent the overexploitation of the stocks (see Principle 1 for further information). Examples of direct CMMs and Recommendations relevant for this fishery include:

- **Rec 2022-06:** Recommendation by ICCAT on the southern Atlantic albacore catch limits for the period 2023-2026
- **Rec 2023-05**: Recommendation by ICCAT on conservation and management measures, including a management procedure and exceptional circumstances protocol for north Atlantic albacore.
- **Rec 2023-04:** Recommendation by ICCAT for the conservation of north Atlantic swordfish
- **Rec 2022-03:** Recommendation by ICCAT for the conservation of south Atlantic swordfish
- **Rec 2023-01:** Recommendation by ICCAT on a multi-annual conservation and management programme for tropical tunas.

Shorter-term measures that are linked, largely to elements within the Principle 2 component of the MSC Fisheries Standard are related to a series of Recommendations and CMMs for bycatch and species that are considered to be endangered, threatened, and protected (ETP) including billfish, seabirds, turtles, and sharks.

Further relevant recommendations can be found in Table 11 or on the ICCAT website: ICCAT·CICTA·CICAA

Therefore, there is evidence that ICCAT has explicit short and long-term objectives in place that are consistent with achieving the outcomes of MSC Principle 1 and 2. **SG80 is met**. The extent to which these objectives are measurable is unclear at this stage. Therefore, **SG100 is not met**.

References

ICCAT, 2022b. *Recommendation by ICCAT Replacing supplemental Recommendation 21-03 extending and amending Recommendation 17-03 for the conservation of South Atlantic swordfish,* s.l.: International Commission for the Conservation of Atlantic Tunas.

ICCAT, 2023b. *Recommendation by ICCAT replacing Recommendation 22-03 extending and amending Recommendation 17-02 for the conservation of North Atlantic Swordfish,* s.l.: International Commission for the Conservation of Atlantic Tunas.

Overall Performance Indicator (PI) Rationale	
Draft scoring range	**Total: ≥80**

	ICCAT: ≥80 Namibia: N/a China: N/a
Information gap indicator	**Information sufficient to score PI**

PI 3.2.2 – Decision-making processes

PI 3.2.2		The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery		
Scoring Issue		SG 60	SG 80	SG 100
a	Decision-making processes			
	Guide post	There are **some** decision-making processes in place that result in measures and strategies to achieve the fishery-specific objectives.	There are **established** decision-making processes that result in measures and strategies to achieve the fishery-specific objectives.	
	Met?	ICCAT: Yes Namibia: N/a (flag state) China: N/a (flag state)	ICCAT: Yes Namibia: N/a (flag state) China: N/a (flag state)	

Rationale

MSC's GSA 4.8 provides limited guidance on this PI, however, does note that the focus is on the decision-making processes and whether they produce measures and strategies within the fishery specific management system. For the UoA the focus is on ICCAT as the primary organisations responsible for developing and implementing the management framework. The fishery management process and its functionality are unlikely to be determined by the vessel's flag state. National level fishery specific objectives are therefore not considered here, and scoring is not applicable.

ICCAT

Decisions made by the ICCAT require a majority vote by the contracting parties to the convention (Article III in the International Convention for the Conservation of Atlantic Tunas) (ICCAT, 2019). As per Article V of the Convention, all decisions of the Council shall be made in accordance with rules established by the Commission. Any decisions made during the annual or biannual meetings of the Commission (also called Recommendations) are applicable and binding to all of the relevant CPCs of ICCAT. All decisions are finalised and become effective six months post-adoption.

During the annual meetings of the Commission, a review of the most recent scientific advice about the tunas and tuna-like species that are monitored and assessed by the Commission is conducted. Using the best scientific advice, the ICCAT will develop the relevant Recommendations for Conservation

Management Measures (CMMs) that apply to all CPCs. Whilst decisions are made on a majority consensus, some CPCs can opt out of decisions, which, on a large scale, could undermine conservation efforts. However, ICCAT clearly has established decision-making processes in place that result in the CMMs required to achieve fishery-specific objectives. Therefore, **SG80 is met**.

b	Responsiveness of decision-making processes			
	Guide post	Decision-making processes respond to **serious issues** identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take some account of the wider implications of decisions.	Decision-making processes respond to **serious and other important issues** identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.	Decision-making processes respond to **all issues** identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.
	Met?	ICCAT: Yes Namibia: N/a (flag state) China: N/a (flag state)	ICCAT: Yes Namibia: N/a (flag state) China: N/a (flag state)	ICCAT: No Namibia: N/a (flag state) China: N/a (flag state)

Rationale

Key decision making for this fishery occurs at the regional level, with the ICCAT representing the higher-level arrangements. At the national level, China and Namibia as Flag States also has an important role in responding to serious and other important issues within their fleets following ICCAT decision-making processes.

ICCAT

As mentioned in 3.2.2a, the ICCAT has a well-defined procedure for decision-making, especially when setting relevant Recommendations and CMMs. These Recommendations and CMMs are based on best scientific advice, presented throughout the year and discussed with CPCs during the relevant Commission meetings, including Panel 1 and 2 meetings, and the annual meeting of the Commission). Research by the SCRS is regularly conducted on stock status of tuna and tuna-like species through stock assessments, and research on relevant ETP species, including some sharks, turtles and seabirds is also regularly conducted. Recommendations and CMMs are designed in respect to the information determined by this research.

Likewise, all Recommendations are made based on a general consensus for their application. A majority of CPCs must vote in favour of the Recommendation before it is accepted by the Commission. Whilst there is the option for CPCs to object to the Recommendation or CMM, those that accept it are bound to the requirements. The CPC is not required to justify its objection, and there are no limits defining when an objection might be acceptable or not.

All research is considered during the meetings that take place throughout the year, and decisions for Recommendations and CMMs are made during the annual plenary meeting only, but implemented and effective after six months, which is considered to be timely. Furthermore, the ICCAT multi-annual conservation and management programme for Tropical Tunas (Recommendation 23-01) is reactive to the state of the tuna stocks, as informed by the relevant scientific information and has thus been updated several times during the last decade to reflect the changes in scientific information. **SG80 is met**. At this stage, it cannot be stated that ICCAT decision-making processes respond to “all issues”. Therefore, **SG100 is not met**.

	Use of precautionary approach			
C	Guide post		Decision-making processes use the precautionary approach and are based on best available information.	
	Met?		ICCAT: Yes Namibia: N/a (flag state) China: N/a (flag state)	

Rationale

Assessment of this Scoring Issue is primarily related to the processes and management decisions taken at the fishery specific management level – therefore the focus is again on ICCAT.. Flag States are required to ensure agreed CMMs, and management arrangements are implemented.

ICCAT

Throughout the year, there are several meetings by the relevant panels and working groups of the ICCAT that discuss and describe the most recent research and information available about the relevant stocks managed by the Commission. The SCRS, is a group of scientists that utilise the precautionary approach to fisheries management and undertake regular stock assessments of the key tuna and tuna-like species

in the Convention area. All Recommendations made by these groups and panels are clearly published on the ICCAT website and are described in a way that makes them publicly available. **SG80 is met**.

	Accountability and transparency of management system and decision-making process			
d	Guide post	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.
	Met?	ICCAT: Yes Namibia: N/a (flag state) China: N/a (flag state)	ICCAT: Yes Namibia: N/a (flag state) China: N/a (flag state)	ICCAT: Yes Namibia: N/a (flag state) China: N/a (flag state)

Rationale

The MSC's GSA 4.8 provides guidance on assessment of this PI, noting that the focus is on the decision-making processes and whether they produce measures and strategies within the fishery specific management system. For the UoA fishery, the ICCAT is responsible for maintaining an effective regional management framework; also acting as the primary fisheries management "decision making" entity on behalf of members and CPCs..

ICCAT

The ICCAT website hosts a wealth of documents, information, and reports published by both the Commission itself, and the relevant panels and working groups. All Recommendations, Resolutions, and CMMs can be found on the website, including those that are both active and that have been replaced/updated. The preamble of an ICCAT Recommendation outlines the scope within which ICCAT operates, the rationale for management measures, and includes elements of research or other information that provide the basis for action or inaction (see Recommendation 23-17 (ICCAT, 2023)). Additionally,

ICCAT publishes decisions made by the Commission in its biennial reports, which include copies of the CPCs' annual reports and contributions from NGOs and scientific research institutions, all of which can be found on the ICCAT website. The information available provides summaries of fishing activities, including all CPCs fishing plans, scientific data are presented and analysed and reports available on the website from the various scientific committees prior to Commission meetings, in time for stakeholders who participate in Scientific working group and those who have observer status at Commission meetings. **SG100 is met**.

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

Rationale

The primary management systems in relation to this Scoring Issue are those of the respective ICCAT and flag states. Fishery specific disputes could potentially occur at any of the assessed tiers. Therefore, each are relevant. These act as the overarching management authority, setting management arrangements and assessing compliance by Members with the arrangements.

ICCAT

ICCAT's various bodies, including the Commission, SCRS, Species Panels, Compliance Committee (COC), and working groups, convene regularly, offering opportunities for discussion and addressing potential concerns, as highlighted in the COC reports. These regular meetings, and the consensus-driven decision-making processes help to mitigate against the risk of legal challenges. At this stage of the pre-assessment, no legal challenges could be identified. However, in instances where a dispute remains

unsolved, there is a mechanism for CPCs to object and decline obligation to the ICCAT Recommendation (as previously described).

The ICCAT Convention Article 26 states “Any conflict regarding application of this Agreement or of any other additional agreement which may be stipulated, if not resolved by negotiation between the parties, shall be submitted to a court of three arbiters for final settlement.” **SG80 is met**.

Namibia

The Marine Resources Act of 2000 notes in Part IV, 12f, that the management board will serve as the body of appeal in any disciplinary matter or point of dispute in matters relating to staff of the agency – referring to the fisheries observer agency. The national judicial system is expected to serve as a mechanism in certain disputes.

No evidence has been found of the management authority being subject to continuing court challenge or of the management system failing to comply with judicial decisions arising from legal challenges. However, this would need to be confirmed with further scrutiny at the time of a full assessment. Therefore, to respect the precautionary approach to scoring, only **SG60 is be met** at this stage.

China

Official legal disputes are rare, there do not appear to be ongoing court challenges to the fishery management authority and there is no evidence of repeated legal violations. It appears that official legal dispute reports are rare, and the court system demonstrates a willingness to comply with judicial decisions, and that disputes are dealt with in a timely manner. Therefore, **SG80 is met**.

References

ICCAT, 2019. *International Convention for the Conservation of Atlantic Tunas,* Madrid: International Commission for the Conservation of Atlantic Tunas.

ICCAT, 2023. *Recommendation by ICCAT amending Recommendation 18-09 on port state measures to prevent, deter and eliminate illegal, unreported and unregulated fishing,* s.l.: International Commission for the Conservation of Atlantic Tunas

MFMR, 2021. *Ministry of Fisheries and Marine Resources: Annual Report 2020/2021,* Windhoek: Ministry of Fisheries and Marine Resources.

MFMR, 2000. *Marine Resources Act,* s.l.: Republic of Namibia Ministry of Fisheries and Marine Resources.

MOA, 2017. *"13th Five-Year Plan" national distant-water fisheries development plan,* s.l.: Ministry of Agriculture.

MARA, 2022. *Opinions of the Ministry of Agriculture and Rural Affairs on promoting the high-quality development of distant-water fisheries during the 14th Five-Year Plan,* s.l.: Ministry of Agriculture and Rural Affair.

NOAA, 2021. *Report to Congress: Improving International Fisheries Management,* s.l.: 2021.

Overall Performance Indicator (PI) Rationale	
Draft scoring range	**Total: 60-79** ICCAT: ≥80 Namibia: 60-79 China: ≥80
Information gap indicator	**Information sufficient to score PI**

PI 3.2.3 – Compliance and enforcement

PI 3.2.3		Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with		
Scoring Issue		SG 60	SG 80	SG 100
a	MCS implementation			
	Guidepost	Monitoring, control and surveillance **mechanisms** exist, and are implemented in the fishery and there is a reasonable expectation that they are effective.	A monitoring, control and surveillance **system** has been implemented in the fishery and has demonstrated an ability to enforce relevant management measures, strategies and/or rules.	A **comprehensive** monitoring, control and surveillance system has been implemented in the fishery and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules.
	Met?	ICCAT: Yes Namibia: Yes China: Yes	ICCAT: Yes Namibia: No China: No	ICCAT: No Namibia: No China: No

Rationale

ICCAT

ICCAT relies on the CPCs to report on their own compliance with the relevant CMMs, which are used by the Compliance Committee (COC) to produce and publish annual reports on compliance. There are data submission requirements imposed on all CPCs to collect and present the relevant data required for assessment by the relevant ICCAT authorities. Flag State obligations and its CPCs Coastal and Port States Measures (PSM), it has put together a system that has demonstrated its ability to monitor and enforce compliance with its CMMs for this fishery. The PSM include obligations for prior notification of port entry, designated ports, restrictions on entry and landing/transhipment of fish, documentation requirements, port inspections, IUU vessel listing, and trade-related measures and sanctions.

ICCAT has established positive and IUU vessel lists, as well as a statistical document program relating to compliance and information from observers. **SG80 is met**.

Namibia

The MFMR hosts an MCS division and requires the use of at-sea and aerial surveillance, vessel monitoring systems, and trained fishery inspectors across all fisheries operating with the Namibian flag and/or within the EEZ. In Namibia's Marine Resources Policy (2004), Section 4, subsection 4.2 (Monitoring, Control and Surveillance) it is reported that regulation of the marine sector requires fishing restrictions, and both at-sea and land based monitoring will be conducted (MFMR, 2004). The Policy further states that the Fisheries Observer Agency will provide additional MCS coverage as all vessels fishing both within the EEZ and internationally will have observers on board.

In 2007, the MFMR published a National Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing, in which, flag state, coastal state, port state, and internationally agreed measures to prevent IUU fishing are all described (MFMR, 2007). Namibian fisheries legislation is also described in the Plan; however, this is largely related to other pelagic fisheries (not tuna-specific). A description of the current MCS systems in place for Namibian fisheries also include the monitoring of landings, and vessel reporting of port exit and entry, including daily catch reports. The following measures are described in the Plan:

- Enforcement of national laws and regulations within the EEZ;
- Compliance with vessel and gear marking requirements;
- Increased observer coverage;
- Continued training and human resource capacity building, including training for within-zone and high seas boarding and inspection;
- Improved liaison with the Fisheries Observer Agency and vessel registration unit within the Ministry of Works, Transport and Communications;
- Further enhancement of the fisheries observer programme;
- Continued inspection of all landings at both ports;
- Full implementation of the national VMS, in step with amendments to the law regarding VMS and high seas fishing;
- Improved liaison with RFMOs of which Namibia is member;
- Improved communication with other organizations and networks, such as FAO and the MCS Network.

There are no Namibian flagged vessels on the current ICCAT IUU vessel list, which could infer that the MCS systems are effective at mitigating against IUU fishing. **SG60 is met**. However, there is not sufficient information available to demonstrate that there is a full MCS "system" in place. Thus, **SG80 is not met**.

<u>China</u>

There are MCS systems in place within the Chinese fisheries management system, including directly through the Bureau of Fisheries (BOF)/Ministry of Agriculture and Rural Affairs (MARA), the China Overseas Fisheries Association (COFA), Shanghai Open University (SHOU). At SHOU, there is an MCS system which operates mainly from the High Seas Fisheries Data Centre and allows the Chinese

government/BOF to remotely monitor the movement of high seas vessels. Licensed tuna fishing vessels are mandated to install VMS systems and guarantee that their VMS is operating whenever they are at sea. Dockside inspections are conducted when UoA vessels are offloading catches in domestic ports. Other designated MCS regulations are described within the OFMR

The Scientific Observer Program under ICCAT requires that for longline vessels, a requirement of 10% observer coverage has been implemented across longline vessels operating within the convention area from 2024 (ICCAT, 2022) to collect at-sea vessel operation data.

MARA has strengthened the high seas transhipment management measures by releasing a notice in 2021 that requires increased monitoring of high seas transhipment. In addition, the central government regularly publishes cases where sanctions have been applied to high-seas vessels engaging in IUU fishing, which can be accessed from the official website.

There are no Chinese-flagged vessels present on the ICCAT IUU vessel list, which indicates a degree of compliance with the law and regulations of the Commission, as well as the effectiveness of the enforcement of the MCS systems. **SG60 is met**. However, there is a lack of capability for in port inspections of DWF vessels, which undermines national and international MCS performance for Chinese flagged vessels. Whilst there is a plan to develop port inspection procedures for DWF vessels, this has not yet been developed. Therefore, **SG80 is not met**.

b Sanctions

Guidepost	Sanctions to deal with non-compliance exist and there is some evidence that they are applied.	Sanctions to deal with non-compliance exist, **are consistently applied** and thought to provide effective deterrence.	Sanctions to deal with non-compliance exist, are consistently applied and **demonstrably** provide effective deterrence.
Met?	ICCAT: Yes Namibia: Yes China: Yes	ICCAT: No Namibia: No China: No	ICCAT: No Namibia: No China: No

Rationale

ICCAT

There are sanctions on trade, vessel list removal or suspension, and a reduction in quota allowance for non-compliant CPCs employed by ICCAT. At this stage, none are reported as being active. Recommendation 23-16 (Recommendation by ICCAT amending Recommendation 21-13 on establishing

a list of vessels presumed to have carried out illegal, unreported, and unregulated fishing activities) outlines the specific requirements designed to streamline and improve IUU listing procedures and requirements. The Recommendation describes IUU activities, how information on IUU activities are recorded and reported by CPCs, the drafting of the IUU vessel list by ICCAT, the actions following the adoption of the IUU list, including the requirements of the CPCs to which these offending vessels are flagged.

The sustainability of global tuna stocks relative to the Marine Stewardship Council criteria (Medley & Gascoigne, 2024) highlighted that whilst sanctions to deal with non-compliance exist and are applied (**SG60**), there is evidence of repeat offences that suggest they are not an effective deterrent. **SG80 cannot be met**.

Namibia

The National Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing, published by the MFMR in 2007 describes the measures in place by Namibian authorities to mitigate against IUU fishing, and includes a description of the relevant sanctions in place (MFMR, 2007). These sanctions are typically monetary, including up to N$2 million for any Namibian flag vessels that operate without an appropriate license. Other sanctions include:

- Up to N$1 million fine for any person who assaults, obstructs, resists, hinders, threatens, or intimidates a fisheries inspector or fisheries observer
- Up to N$500,000 for any person who violates any condition of a right, an exploratory right, a fisheries agreement, a quota or a licence
- Variable fine for mis-reporting or non-reporting
- Forfeiture of any marine resource, fishing gear, vessel, vehicle or item in respect of which the offence was committed – in addition to any other penalty imposed
- Court charges for an offence under the Act committed within Namibian waters.
- Imprisonment,
- Penalties

All of the sanctions are also listed in detail within the Marine Resources Act (2000) (MFMR, 2000).

In the last annual report published by the MFMR, a detailed list of violations and the associated fines were listed in section 8 (Operation) for each method of MCS employed by the MFMR, including sea and air patrols. The list of violations are clearly reported, and the resulting fines are also described in an accessible manner for the public to review. There has been no recent annual reports published by MFMR to their website since 2020, so there is no way of reviewing the more relevant sanctions or violations made by Namibian-flagged vessels. However, it is considered likely that continued reporting in this way is evidence that the measures are applied. **SG60 is met**.

In 2023, research conducted on the fishery regulatory violations in Namibia and their possible implications for the sustainable management of fishery resources (Iitembu, et al., 2023) analysed fishery violations from 2003-2022, and noticed that the most violations occurred between 2004-2008. The main cause for violation was the discard of marine resources. The data used to analyse these violations was from observer reports, and since 2009, there has been a declining trend in observed violations. Nevertheless, the act of discarding marine resources is still prevalent amongst recent violations reported by the observers. Despite the Marine Resource Act (2000) stating that that the penalties for such acts can lead to 10 years imprisonment and a fine of N$500,000, it is not considered to be enough to deter the continuation of these acts. Discarding marine resources is highly detrimental to fisheries sustainability because it leads to underreported figures in stock assessments. However, the clear declining trend in violations from 2003 to 2022 indicates that the sanctions are effective.

As mentioned in 3.2.3a, there are no Namibian flagged vessels on any IUU list for ICCAT, nor the other tRFMOs, including WCPFC, IOTC, and IATTC. Therefore, it is considered that these sanctions are effective. However, without more recent and relevant reporting on violations and sanctions, it is not clear that these are “consistently applied”. Thus, **SG80 cannot be met.**

China

The China National Fisheries Five-Year Development Plan and High Seas Fishing Development Plan articulate that China intends to continually combat IUU fishing and increase its compliance level with RFMOs tuna fisheries management measures (MOA, 2017).

Chinese Fisheries Law and Offshore Fisheries Management Regulations (OFMR) provide details of the penalties for conducting IUU fishing (fines and suspension/cancellation provisions and in serious cases confiscation of gear and or vessel) under the legislation. In addition, MARA conducts regular investigations of infractions and publishes penalty outcomes of companies and vessel master’s that have been sanctioned as a result of conducting IUU fishing activities on its official website. Based on the information available, sanctions to deal with non-compliance exist and there is some evidence that they are applied constantly so **SG60 is met**.

NOAA report to Congress in 2021 mentioned China as one of seven IUU fishing and bycatch countries due to its fishing vessels allegedly violating transhipment and shark regulations of RFMOs in the Pacific and Atlantic oceans (EJF, 2022). As there is insufficient evidence that sanctions to deal with non-compliance exist, are consistently applied and thought to provide effective deterrence, **SG80 is not met**.

Compliance

C	Guidepost	Fishers are **generally thought** to comply with the management system for the fishery under assessment, including, when required, providing information of importance to the effective management of the fishery.	**Some evidence exists** to demonstrate fishers comply with the management system under assessment, including, when required, providing information of importance to the effective management of the fishery.	There is a **high degree of confidence** that fishers comply with the management system under assessment, including, providing information of importance to the effective management of the fishery.
	Met?	ICCAT: Yes Namibia: Yes China: Yes	ICCAT: Yes Namibia: Yes China: No	ICCAT: No Namibia: No China: No

Rationale

ICCAT

All ICCAT members are bound to the Convention's Resolutions and Recommendations, and port state measures (PSM), including the obligation for members' vessels to notify port entry and exit, restrictions on landing and transshipment of fish, retaining and completing all relevant catch documentation, and adhering to port inspections, trade-related measures, and IUU vessel list processes.

Fishery observer reports are used to identify appropriate compliance with related CMMs and Recommendations for species' (including ETP species) measures. Observer reports, logbooks and other MCS data are submitted to ICCAT on a regular basis to provide reliable evidence that the vessels/fishery is compliant with the management system. During the ICCAT COC meetings, and annual plenary of the Commission, these reports are reviewed and considered.

After the annual plenary meeting, a report is produced which outlines the discussion points from across the meeting. This also includes reference to compliance from across the members and CPCs. In the latest (2023) report, it was referenced that Namibia has exceeded its allotted TAC quota (ICCAT, 2023b). In response, both the Commission and Namibia agreed that there will be adjustments to the 2023 TAC to payback its overharvest in 2024. Full compliance tables can also be found in the Annex of the annual plenary meeting reports. Therefore, **SG80 is met**.

Namibia

As mentioned above, in the latest annual report from ICCAT, it was reported that Namibia had exceeded its allocated quota in 2022. This was remediated by a decrease in the TAC permitted for the 2024 period. Therefore, there is evidence to demonstrate that the coastal state is interested and invested in the effective management of the fishery.

The annual report from MFMR for 2020-2021 highlighted that whilst there were some violations and sanctions applied to some vessels and fisheries operating under the Namibian flag, these were considered to be minor violations that were not committed by the whole Namibian fleet. Therefore, it is considered that the fishers generally comply with the management system. **SG60 is met**.

There are no Namibian-flagged vessels on any of the IUU vessels lists from the tRFMOs (ICCAT, WCPFC, IOTC, and IATTC). Therefore, there is some evidence to demonstrate that fishers comply with the management system under assessment. Likewise, all information pertaining to the requirements of ICCAT Recommendations and Resolutions is submitted to ICCAT when requested and there is no mention of lacking information from Namibia in the ICCAT reports. **SG80 is met**.

China

The most recent report from the ICCAT annual plenary meeting in 2023 demonstrated that China has requested to carry over the quota underage from the 2023 period to 2024 (ICCAT, 2023). This could highlight their compliance with the quota requirements set by ICCAT in not exceeding their allowance. Furthermore, the compliance details listed in the ICCAT meeting report from 2023 demonstrated that China did not contribute to the fishing of either north or south swordfish. The only issue related to compliance with the ICCAT Recommendations in 2023 was due to late reporting of bluefin tuna catch, which was due to administrative difficulty. There are currently no Chinese-flagged vessels reported on the ICCAT IUU vessel list.

Most fishers are generally thought to comply with the national fisheries management system, based on the Compliance White Book published by MARA which evaluates the compliance degree of all Chinese high seas fishing companies with regulations and management measures. **SG60 is met**.

Despite the absence of Chinese-flagged vessels on the ICCAT IUU list, globally, Chinese-flagged vessels are regularly being reported to be conducting IUU fishing. Therefore, there is not consistent information currently available to demonstrate that fishers fully comply with the management measures imposed by the fishery management system. Thus, **SG80 is not met**.

d	Systematic non-compliance			
	Guide post		There is no evidence of systematic non-compliance.	
	Met?		ICCAT: Yes Namibia: Yes China: Yes	

Rationale

ICCAT

In July 2024, an evaluation of the sustainability of global tuna stocks relative to the Marine Stewardship Council criteria was published (Medley & Gascoigne, 2024). The report reviewed the relevant RFMOs, including ICCAT, and scored each against the Principle 3 requirements of the MSC. In terms of PI 3.2.3d, the report noted that “there is no evidence of systematic non-compliance.” Only that non-compliance within the CMMs is opportunistic, and that obtaining relevant information pertaining to ICCAT requirements in a timely manner is difficult. Therefore, the non-compliance described currently is not considered to threaten the sustainability of the tuna fisheries in ICCAT. **SG 80 is met**.

Namibia

Whilst there are reports of violations made across the Namibian fisheries and vessels within fisheries, these are not considered to be widespread across the entire fleet. Therefore, there is no evidence of systematic non-compliance and **SG80 is met**.

China

Under ICCAT, China does not appear to be regularly nor systematically failing to meet the requirements it is bound to by the relevant CMMs and Recommendations. The United States NOAA 2021 report to Congress highlighted Chinese vessels violating international conservation treaty and conducted illegal transhipment activities (EJF, 2021). The NOAA report mentioned from 2019 to 2021 there are many instances that Chinese vessels conducted illegal fishing activities. However, there is also evidence of some compliance in other aspects, thus the there is “no evidence of systematic non-compliance” in Chinese high seas tuna fleets and **SG80 is met**.

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Overall Performance Indicator (PI) Rationale	
Draft scoring range	**Total: 60-79** ICCAT: 60-79 Namibia: 60-79 China: 60-79
Information gap indicator	**Information sufficient to score PI**

PI 3.2.4 – Monitoring and management performance evaluation

PI 3.2.4		**There is a system of monitoring and evaluating the performance of the fishery-specific management system against its objectives** **There is effective and timely review of the fishery-specific management system**		
Scoring Issue		SG 60	SG 80	SG 100
a	Evaluation coverage			
	Guide post	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.
	Met?	ICCAT: Yes Namibia: Yes China: Yes	ICCAT: Yes Namibia: No China: Yes	ICCAT: Yes Namibia: No China: No

Rationale

For this Scoring Issue the RFMO led fishery-specific management systems are primarily considered as these are where management arrangements are developed and implemented to pursue sustainability of target stocks and manage fishery impacts on non-target species and marine ecosystems. Flag state level evaluation of the fishery management system should also be considered.

ICCAT

As mentioned, ICCAT has a variety of committees, panels, and working groups that regularly meet and report their findings to the Commission. These subsidiaries consist of the Standing Committee Research and Statistics (SCRS), responsible for stock assessments; Panels 1, 2, and 3 that are responsible for the regular review of species, groups or geographic area; Permanent Working Group, which reviews trade and fishery information; and the Compliance Committee (COC), which reviews all aspects of compliance with ICCAT CMMs. These subsidiary groups all work to evaluate their relevant sections of the ICCAT purview and are also subject to regular internal review. External evaluation, including from the Medley & Gascoigne reports (Medley & Gascoigne, 2024), is also conducted on the Commission. **SG100 is met**.

Namibia

A review of Namibia's use of the ecosystem approach to fisheries management was conducted in 2021 by Iitembu et., al. and demonstrated that whilst the principle of management measures applied by the MFMR are relative to the ecosystem approach, in practice it is more challenging to apply (Iitembu, et al.,

2021). Whilst this is not considered to be an internal review of the MFMR's own management, it is considered a review and provides information and examples for improvement. Likewise, the Marine Resources Act of 2000 has never been updated, amended, or improved upon since the establishment, which could be an indicator that there are minimal internal reviews of the current management system. However, there are, in theory, annual reports that are published by the MFMR to inform about the current management and the findings from across the year. Whilst the last annual report that is publicly available was from the 2020/2021 year, this is not to say that other annual reports are not available. Therefore, at this stage of the pre-assessment, there are mechanisms in place to evaluate some parts of the fishery-specific management system. Thus, **SG60 is met**. However, at this stage of the pre-assessment, no evidence is available to demonstrate that key parts of the fishery-specific management system are available. **SG80 is not met**.

China

The Ministry of Agriculture and Rural Affairs (MARA) is responsible for Distant Water Fisheries, and monitors the implementation of relevant national laws, regulations and policy by DWF enterprises jointly with relevant government agencies. The Bureau of Fisheries (BOF) under MARA regularly reviews Five-Year High Seas Fisheries Development Plans and National Fisheries Development Plans in consultation with other government departments, industry associations, and other stakeholders. Every five years, the BoF under MARA evaluates the past Five-Year Plan and develops new Five-Year Plan for China National Fisheries, which includes high seas fisheries development. Also, other fishery management plans and measures under overall fisheries management system are also subjected to periodical evaluation (MOA, 2017; MARA, 2022). Therefore, **SG80 is met**.

As ICCAT is the primary body responsible for this SI, the score for the RFMO will be considered as the representative score for this SI. Thus, SG80 is met for this SI.

b Internal and/or external review

Guide post	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.
Met?	ICCAT: Yes Namibia: Yes China: Yes	ICCAT: Yes Namibia: No China: No	ICCAT: No Namibia: No China: No

Rationale

The focus of this Scoring Issue is the ICCAT framework that has overall responsibility for developing and implementing a fishery specific management system, Members (e.g. China and Namibia) are bound by the arrangements in these management systems, and required to implement these in domestic legislation and policy.

ICCAT

As mentioned in PI 3.2.4a, the relevant subsidiaries of ICCAT work to evaluate the Commission and the relevant areas of management. All parts of the management are evaluated and regularly reviewed internally. **SG80 is met**. However, there is no evidence that the external reviews are regular. Thus, **SG100 cannot be met** at this stage.

Namibia

As mentioned in PI 3.2.4a, there is some evidence to demonstrate that the MFMR has mechanisms in place to conduct internal reviews. **SG60 is met**.

There are reports on the external review of the management system in Namibia from Iitembu et., al. (2021 and 2023) (Iitembu, et al., 2021; Iitembu, et al., 2023). However, whether the MFMR reads and responds to the improvement recommendations made is unclear. **SG80 is not met**.

China

The national Five-Year Plans are revised/updated every five years and are subject to regular internal review. It is conducted annually or periodically, and the local BOF provides feedback on the implementation or recommendations to the central government after review. Other fisheries management regulations, such as the Fisheries Law of the People's Republic of China, are subject to internal review. Therefore, **SG60 is met**. The fisheries monitoring, control and surveillance (MCS) systems of China were evaluated under the Global Evaluation of Fisheries MCS in 84 countries project in 2017. Therefore, there is evidence of external reviews, which could be considered as "occasional" and thus **SG80 is met**.

As ICCAT is the primary body responsible for this SI, the score for the RFMO will be considered as the representative score for this SI. Thus, SG80 is met for this SI.

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Overall Performance Indicator (PI) Rationale	
Draft scoring range	**Total:** ≥80 ICCAT: ≥80 Namibia: 60-79 China: ≥80
Information gap indicator	**Information sufficient to score PI**

Appendix

Risk-based Framework (RBF)

Table 12: Productivity-susceptibility assessment (PSA) for Taiwan (Pacific) saury (*Cololabis saira*)

Performance Indicator	2.2.1	
Productivity		
Scoring element (species)	Taiwan (Pacific) saury (*Cololabis saira*)	
Attribute	**Justification**	**Score**
Average age at maturity	2.5-3.5 years (FishBase, 2023)	**1**
Average maximum age	4 years old maximum age (FishBase, 2023)	**1**
Fecundity	At least 140,000 eggs (FishBase, 2023)	**1**
Average maximum size Not scored for invertebrates	70 cm (FishBase, 2023)	**1**
Average size at maturity Not scored for invertebrates	40 cm (FishBase, 2023)	**1**
Reproductive strategy	Broadcast spawner (FishBase, 2023)	**1**
Trophic level	3.7 (FishBase, 2023)	**3**
Density dependence Invertebrates only	NA	**NA**
Susceptibility		
Fishery		

Only where the scoring element is scored cumulatively	*Insert list of fisheries impacting the given scoring element (MSC Fisheries Standard Toolbox A4.4.3a)*	
Attribute	**Justification**	**Score**
Areal Overlap	As the Pacific saury stocks are located in the Pacific Ocean, and are the target species for the bait fishery, it can be assumed that the overlap is >30%	**3**
Encounterability	As with Areal Overlap, the Pacific saury is the target species and therefore encounterability will also be very high.	**3**
Selectivity of gear type	Dip netting and lift nets, as are used in Pacific saury fisheries is largely unselective but less so than purse seine gears, so will likely contribute to fewer incidents of bycatch. However, selecting adults from a population will still be challenging.	**2**
Post capture mortality	As target species, all of the retained species will be dead, so the post capture mortality is high	**3**
Catch (weight) Only where the scoring element is scored cumulatively	*N/a*	***N/a***
Score		**≥80**
REFS	FishBase, 2023. *FishBase: Cololabis saira.* [Online] Available at: https://www.fishbase.se/summary/Cololabis-saira.html [Accessed 27 November 2023].	

Table 13: PSA scores and resulting scores for Pacific saury (bait species) sourced and used by the fishery under assessment

					Productivity Scores [1-3]									Susceptibility Scores [1-3]								
Scoring element	**Family name**	**Scientific name**	**Common name**	**Species type**	Average age at maturity	Average max age	Fecundity	Average max size	Average size at maturity	Reproductive strategy	Trophic level	Density dependence	Total Productivity (average)	Availability	Encounterability	Selectivity	Post-capture mortality	Total (multiplicative)	PSA Score	**MSC PSA-derived score**	Risk Category Name	MSC scoring guidepost
1	Scomberesocidae	Cololabis saira	Pacific saury	Vertebrate	1	1	1	1	1	1	3		1.29	3	3	2	3	2.33	2.66	80	Low	≥80

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Template version control

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

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

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