

Principle 1 Performance Indicator Score Update for Bigeye Tuna (*Thunnus obesus*) in the Eastern Pacific Ocean

Confidential Report
Version 1.0

Prepared by

by Key Traceability Ltd.
December 2024



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Contents

Glossary	3
1. Executive Summary	4
2. Report Details.....	6
2.1. The MSC Fisheries Standard.....	6
2.2. Version Details.....	6
2.3. Principle 1 update	7
3. References for update.....	9

Glossary

Acronym	Definition
CoC	Chain of Custody
EPO	Eastern Pacific Ocean
FIP	Fishery Improvement Programme
IATTC	Inter American Tropical Tuna Commission
ISSF	International Seafood Sustainability Foundation
MSC	Marine Stewardship Council
P1	Principle 1
PI	Performance Indicators
RFMO	Regional Fisheries Management Organisation
UoA	Unit of Assessment

1. Executive Summary

This document presents the results of a Principle 1 (P1) performance indicator (PI) scoring update for eastern Pacific Ocean (EPO) bigeye tuna (*Thunnus obesus*) against the Marine Stewardship Council (MSC) Fisheries Standard for sustainable fishing (Version 2.01).

In 2024, a benchmark assessment for EPO bigeye tuna was conducted by the Inter American Tropical Tuna Commission (IATTC) that continues to use a risk analysis approach. The risk analysis encompasses three hypotheses structured hierarchically to address the main uncertainties, resulting in a total of 33 different models. Changes made to the assessment have resolved the regime shift in recruitment, so, as a result, the regime shift hypothesis is no longer included as the overarching hypothesis in this benchmark assessment. The outcomes of the benchmark assessment demonstrated that:

1. $SSB_{current}/SSB_{MSY}$ varies considerably (range: 0.45-2.92), the combined value of the ratio for all the models is 1.05. The overall probability that $SSB_{current}$ is below SSB_{MSY} across all the models is 46.6%. This indicates that the stock is likely **fluctuating around the target level of SSB_{MSY}** .
2. The ratio of $F_{current}/F_{MSY}$ for the 33 models also varies considerably (range: 0.42-1.36). The combined value of the ratio across the 33 models is estimated at 0.79 and the combined probability that $F_{current}$ exceeds F_{MSY} is 24.7%. This indicates that the **stock is likely being exploited below the target level of F_{MSY}** . However, the number of purse seine sets on floating objects have continuously increased in recent years, except for 2020, which is a concern.
3. The model-weighted average of **MSY across all models is estimated to be 105,000 tonnes** (range: 91,000-111,000), which is **higher than the current catch level of 67,000 tonnes in 2023**. MSY has been reduced to about half its level in 1993, when the expansion of the floating-object fishery began, as the overall selectivity from all fleets combined shifted towards smaller individuals. Since bigeye tuna can grow close to 200 cm, catching them when they are small results in a loss of potential yield, i.e. the catches that could be taken by other gears that target larger individuals, such as longlining. This is known as "growth overfishing".

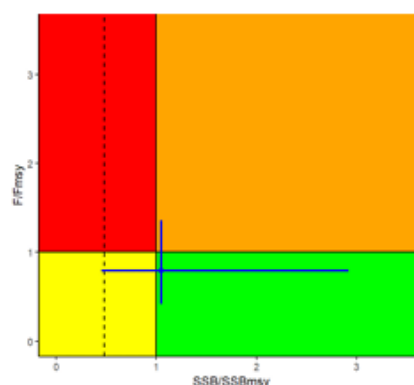


Figure 1: Kobe plot demonstrating the estimate of combined SSB/SSB_{MSY} and combined F/F_{MSY} for bigeye tuna. Source: ISSF Status of the World Fisheries for Tuna: November 2024 (ISSF, 2024)

The findings of the benchmark assessment indicated that EPO bigeye tuna sticks are not experiencing overfishing and are not overfished. Rather, the stock biomass is over the target reference point and fishing mortality is currently below target fishing mortality. Likewise, the interim stock assessment showed that estimates of uncertainty do not exceed limit reference points.

As a result of the improved outcome for bigeye tuna stocks in the EPO, the related PI scores for relevant fishery improvement projects (FIPs) may also be updated to harmonise with these improvements. The improved scores are essential for the FIPs that are aiming to transition into MSC assessment in the near future.

2. Report Details

2.1. The MSC Fisheries Standard

There are three principles in the MSC standard:

Principle 1 – Sustainable fish stocks, target fish stocks must be kept at a sustainable level.

Principle 2 – Minimising environmental impacts, the fishery should be managed in a way that maintains the structure, productivity, function, and diversity of the fisheries ecosystem.

Principle 3 – Effective management, the fishery must have a responsive management system in place and management must meet all local, national, and international laws.

Fisheries assessed against the MSC Fisheries Standard are evaluated against 28 Performance Indicators (PIs) within the three principles. There are six performance indicators for Principle 1, split between two components, outcome (2 PIs) and management (4 PIs). Principle 2 has 15 performance indicators split into three components (outcome, management strategy, information) for primary species, secondary species, endangered threatened and protected species, habitats, and ecosystem. Principle 3 has seven performance indicators split between two components, governance, and policy (3 PIs) and fishery specific management system (4 PIs).

PIs are scored for the fishery based on the MSC specific scoring guidelines (SGs). For a fishery to be certified, the fishery must score a minimum of 60 against all 28 PIs and an average of 80 across each of the three principles. Performance indicators that score between 60 and 79 will be given a condition to achieve a score of 80 or above within a specific timeframe. After certification, the fishery will undergo annual audits and will be re-assessed every five years.

2.2. Version Details

The report uses the MSC Fisheries Standard v2.01, the Fisheries Certification Process v2.2 and MSC pre-assessment reporting template v3.1. The default assessment tree was used without adjustments. The Risk-Based Framework (RBF) was not used.

The MSC decision rule for reaching the final recommendation is as follows:

- No PIs can score below 60.
- The aggregate score for each Principle, rounded to the nearest whole number, is 80 or above.

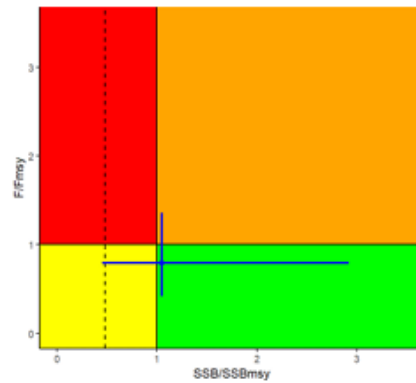
The aggregate score for each Principle is the sum of the weighted score of each PI within that Principle.

2.3. Principle 1 update

3.4.1 EPO bigeye tuna scoring update

For this update, EPO bigeye can receive multiple scoring updates. This has been possible due to new interim stock assessment being conducted in 2024 showing favourable results. The interim stock assessment demonstrated that the stock is healthy and not currently undergoing overfishing.

Performance Indicator	Draft scoring range	Data deficient?
1.1.1 – Stock status	≥80	No
Rationale or key points		
<p>In 2024, to evaluate stock status, the IATTC conducted a benchmark assessment that continues to use a risk analysis approach. The risk analysis encompasses three hypotheses structured hierarchically to address the main uncertainties, resulting in a total of 33 different models. Changes made to the assessment have resolved the regime shift in recruitment, so, as a result, the regime shift hypothesis is no longer included as the overarching hypothesis in this benchmark assessment. The results of the assessment and risk analysis indicate the following (EPO-4):</p> <ol style="list-style-type: none"> 1. While for the 33 models the ratio $SSB_{current}/SSB_{MSY}$ varies considerably (range: 0.45-2.92), the combined value of the ratio for all the models is 1.05. The overall probability that $SSB_{current}$ is below SSB_{MSY} across all the models is 46.6%. This indicates that the stock is likely fluctuating around the target level of SSB_{MSY}. 2. The ratio of $F_{current}/F_{MSY}$ for the 33 models also varies considerably (range: 0.42-1.36). The combined value of the ratio across the 33 models is estimated at 0.79 and the combined probability that $F_{current}$ exceeds F_{MSY} is 24.7%. This indicates that the stock is likely being exploited below the target level of F_{MSY}. However, the number of purse seine sets on floating objects have continuously increased in recent years, except for 2020, which is a concern. 3. The model-weighted average of MSY across all models is estimated to be 105,000 tonnes (range: 91,000-111,000), which is higher than the current catch level of 67,000 tonnes in 2023. MSY has been reduced to about half its level in 1993, when the expansion of the floating-object fishery began, as the overall selectivity from all fleets combined shifted towards smaller individuals. Since bigeye tuna can grow close to 200 cm, catching them when they are small results in a loss of potential yield, i.e. the catches that could be taken by other gears that target larger individuals, such as longlining. This is known as "growth overfishing". 		



In 2024, IATTC updated the stock status indicators that serve as supplemental information to monitor the stock. Most floating-object fishery indicators suggest that the stocks for all three tropical tuna species have potentially been subject to increased fishing mortality, mainly due to the increase in the number of sets in the floating-object fishery. The number of sets on floating objects in 2022 reached the highest value since 2000. For bigeye, both catch in weight and catch-per-set on floating-object sets are at the lowest level since 2000, which may partly be a result of the introduction of the catch threshold scheme per vessel for bigeye tuna under Resolution C-21-04 adopted in 2021. An evaluation of the impact of this scheme confirmed that it likely had a positive effect on reducing bigeye catches in 2022 and 2023 (Ovando, Bradley, Burns, Thomas, & Thorson, 2024).

1.1.2 – Stock rebuilding

N/A

No

Rationale or key points

As PI 1.1.1 scored at least SG80, this PI does not need to be scored (as FCP SA2.3.1).

3. References for update

ISSF. (2024). *ISSF 2024-07: Status of the World Fisheries for Tuna*. Pittsburgh: International Seafood Sustainability Foundation.

Ovando, D., Bradley, D., Burns, E., Thomas, L., & Thorson, J. (2024). Stimulating benefits, costs and trade-offs of spatial management in marine social-ecological systems. *Fish and Fisheries*, 218-234.