

# Indian Ocean large pelagics longline FIP (Afrutex) Annual Review of the HCRs for P1 species by the IOTC

*Prepared by*

**Key Traceability Ltd.**  
**January 2024**

Project ref: 0062

V1.0



Key Traceability Ltd.

+44 7505 122728

[Info@keytraceability.com](mailto:Info@keytraceability.com)

England Registered Company 09730288

70 Londesborough Road, Portsmouth, PO4 0EX

## Introduction

The Indian Ocean tuna and large pelagics longline Fishery Improvement Project (FIP) (Afrifex) was established in 2019 with the intention of becoming certified by the Marine Stewardship Council (MSC). The FIP operates within the coastal waters of the Mauritian and Madagascan exclusive economic zone (EEZ) and the high seas of the Indian Ocean. The fishery is comprised of 14 longline vessels that target bigeye tuna (*Thunnus obesus*), yellowfin tuna (*T. albacares*), swordfish (*Xiphias gladius*), and mahi mahi (*Coryphaena hippurus*). The fishery is regionally managed by the Indian Ocean Tuna Commission (IOTC).

The primary species of the fishery must be appropriately managed and consistently reassessed to determine if any updates to the management are required. Consideration of the primary species' stock health in the Indian Ocean is imperative for the FIP's progression towards certification by the MSC. Over the years, yellowfin and bigeye tuna stocks in the Indian Ocean have been declining, largely due to the impacts of overexploitation by commercial fisheries and poor effective management by the IOTC. Likewise, stocks of mahi mahi and swordfish are commonly undermanaged in the Indian Ocean. In order to pass the requirements of the MSC Fisheries Standard (v3.0), fisheries need to demonstrate that the stocks of all target species are healthy and have adequate management measures in place to ensure that this is maintained. Management measures need to consist of harvest strategies and harvest control rules (HCRs) that can be species-specific.

The aim of this report is to review the situation of Harvest Control Rules (HCRs) for the P1 species of the Indian Ocean large pelagics longline FIP (Afrifex) and to suggest where improvements need to be made in order to improve the stock health of these species.

## Assessment of the current HCRs from the IOTC

### Yellowfin tuna

In 2021, the IOTC renewed an interim rebuilding plan for yellowfin tuna in the Indian Ocean (IOTC, 2021). The requirements of this plan applies to all Contracting Parties and Cooperating Non-Contracting Parties (CPCs) to the IOTC and include a series of catch limits per CPC. Catch limits are dependent on the total catch rate from previous years. Furthermore, requirements were implemented for CPCs that exceed their annual catch limit and included deductions from the allowable limit for the years following the over catch. Finally, all CPCs are required to also conform with Resolution 15/01 to record catch and effort data to provide as much data as possible to the IOTC Compliance Committee.

The most recent stock assessment for Indian Ocean yellowfin tuna stocks was conducted in 2021 and incorporates a wide range of uncertainty, which makes it seem more robust than the previous assessment of 2018. The results of the assessment demonstrated that the stock is still in an overfished state and experiencing overfishing (ISSF, 2023). The stock assessment also demonstrated that the catch rate and spawning stock biomass (SSB) are breaching the target reference point (TRP). The TRP is the state of the stock that is considered desirable and would help maintain fluctuation around maximum sustainable yield (MSY). Conversely, the and the catch rate is below the limit reference point (LRP), but SSB is almost double the limit reference point (Figure 1). The two reference points are applied to stock assessments and management to identify the ideal catch rate that would maintain the stock fluctuating around Maximum Sustainable Yield (MSY) (TRP), and the lowest point before the point of recruitment impairment (PRI) (LRP). Therefore, breaching the TRP and approaching the LRP is a significant issue within the fishery for yellowfin tuna.

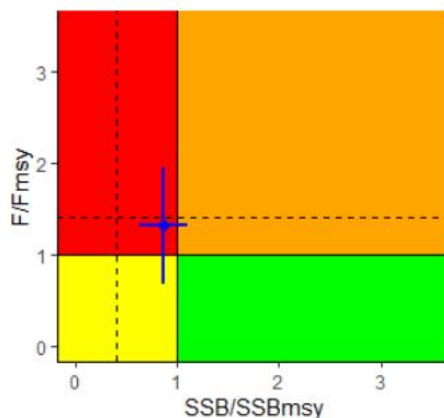


Figure IO-6. Latest estimate of  $SSB/SSB_{MSY}$  and  $F/F_{MSY}$  (in blue, including range) for IO yellowfin. Solid black lines represent interim target reference points and black dashed lines represent interim limit reference points.

Figure 1: Kobe plot of the most recent stock assessment conducted on Indian Ocean yellowfin tuna in 2021. Source: (ISSF, 2023)

The report from ISSF also describes how catches of yellowfin tuna in 2021 were around 420,800 MT, which represents a 2% decrease from the 2020 catch levels. The interim rebuilding plan of 2021 set an interim LRP and TRP, however, there are no harvest strategies nor HCRs in place for this species in the Indian Ocean, despite years of advocacy and even specific resolutions that required the IOTC to agree on management procedures and HCRs (Res. 16/09) (IOTC, 2019).

## Bigeye tuna

In 2022, the IOTC introduced Res. 22/03 for the management of Indian Ocean bigeye tuna. The resolution describes a specific management procedure that is designed to achieve:

- a. a 60% probability that the bigeye tuna spawning stock biomass achieves the target reference point of  $SB_{MSY}$  1 by 2034-2038;
- b. the bigeye tuna spawning stock biomass avoids breaching the interim limit reference point specified in Resolution 15/10 with a high probability; and operates with the following constraint:
- c. the maximum increase or decrease in the total allowable catch (TAC) shall be 15% relative to the previous TAC.

The resolution also outlines a TAC shall be adopted based on the outcome of the management procedure and is to be applied in 2024 and 2025 if necessary. The allocation of the TAC to CPCs will be determined by the Commission by no later than 2025. Finally, Res. 22/03 describes how a review of the management procedure will take place by the Commission in 2030 to understand more about the success and efficacy of the implementation for bigeye stocks. In 2023, Res. 23/04 demonstrated the implementation of a TAC of 80,583 MT for 2024 and 2025 based on the outcome of the management procedure.

As with yellowfin tuna, an interim LRP and TRP was defined for bigeye tuna in the IOTC. However, the results of the stock assessment conducted in 2022 also indicated that overfishing is occurring and that the stock is in an overfished state. The interim LRP and TRP for bigeye tuna are currently being breached for the total catch rate, and SSB (Figure 2).

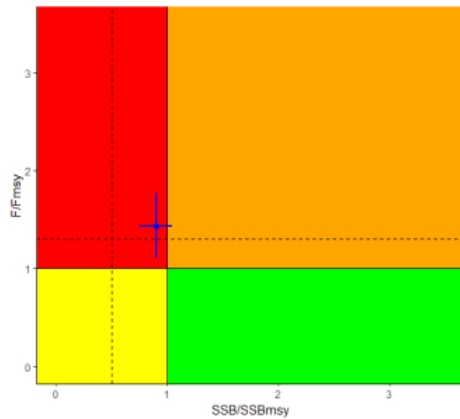


Figure IO-4. Latest estimate of  $SSB/SSB_{MSY}$  and  $F/F_{MSY}$  (in blue, including range) for IO bigeye. Solid black lines represent interim target reference points and black dashed lines represent interim limit reference points.

Figure 2: Kobe plot of the most recent stock assessment conducted on Indian Ocean bigeye tuna in 2021. Source: (ISSF, 2023)

Catch rates of bigeye tuna demonstrated a 5% decrease between 2020 and 2021, which could be attributed to the COVID-19 pandemic and restriction on fishing vessels, rather than demonstrated efficiency of the HCRs and harvest strategies. Despite there being more management measures in place for bigeye as opposed to yellowfin tuna, it is still considered that the HCRs are not sufficient to meet a passing score at MSC assessment level and more work is to be done to improve this.

### Swordfish

The last IOTC Resolution that related to swordfish management in the Indian Ocean was established in 2015 (Res. 15/11), and it has since been deactivated across the Commission. Since then, the IOTC has not established any further management procedures or harvest strategies for this stock in the Indian Ocean.

In 2019, a stock assessment was conducted on Indian Ocean swordfish, which indicated that the stock was not likely to be in an overfished state, nor experiencing overfishing Figure 3. Nonetheless, there is no further management measures or Resolutions that are relevant to Indian Ocean swordfish stocks mandated by the IOTC and this needs to change in order to prevent overexploitation of the species.

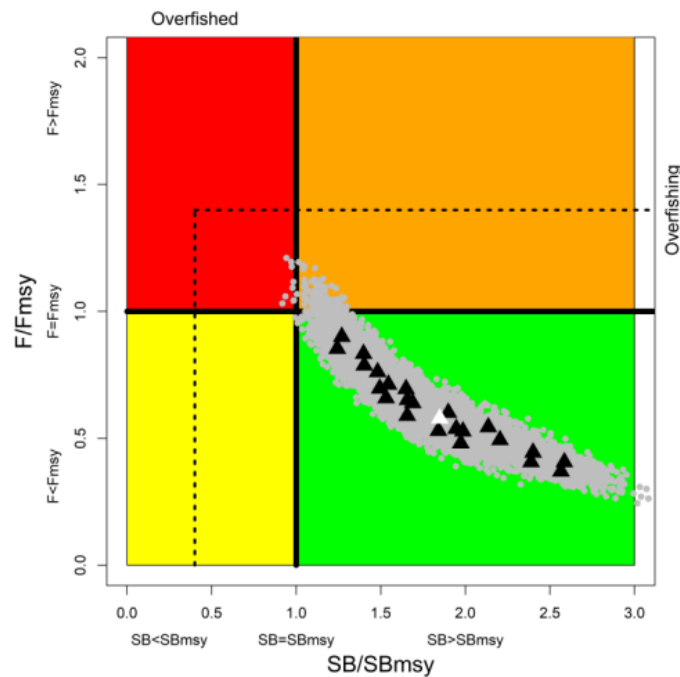


Figure 3: Kobe plot of the most recent stock assessment conducted on Indian Ocean swordfish in 2019.. Source (Anhalzer, et al., 2021)

## Mahi mahi

There has been no stock assessment nor management measures associated with the Indian Ocean stock of mahi mahi. A significant paucity of data on the health of the stock means that management measures are unable to be developed and implemented. Thus, the current status of mahi mahi in the Indian Ocean, and for this FIP, is unknown.

## Next steps

Clearly, lack of HCRs, management procedures, and harvest strategies demonstrates that there is significant work required to improve the status of this fishery and the likelihood of it passing MSC certification. The FIP will need to continue advocating for the implementation of a robust rebuilding plan for yellowfin tuna that considers the outcomes of stock assessments and awareness of the TRP and limit reference point (LRP). The rebuilding plan needs to consider implementing fishery closure periods to reduce negative impact on spawning populations of yellowfin tuna. There are currently no harvest control rules (HCRs) in place within the IOTC for yellowfin tuna, and barely accessible harvest strategies that are essential if the stock status is to improve to pre-exploitation rates. The FIP will also need to advocate for the implementation of robust harvest strategies for both yellowfin and bigeye tuna that clearly defines HCRs. These strategies will also need to be adequately monitored and regularly assessed to understand the success of their implementation. More recent stock assessment data is required for swordfish, and subsequent management measures should be implemented to improve the status of the stock. For mahi mahi, a serious increase in awareness and monitoring of this species is imperative in order to understand more about the state of the current stock, and to infer relevant management measures for improvements.

At the FIP level, advocacy via position statements to the IOTC will be essential in ensuring that there is decent coverage of the needs of the Commission in improving information about the stocks and the management measures associated. Likewise, collaboration with similar fisheries and FIPs, as well as

partnerships with Non-governmental organisations (NGOs), may also be beneficial in the advancement of these requirements from the IOTC.

## References

Anhalzer, G., DiNardo, G., Bystrom, A. & Bodsworth, A., 2021. *Zhejiang Ocean Family Co., Ltd Pacific and Indian Ocean longline tuna and swordfish MSC fishery assessment report Indian Ocean*, Emeryville: SCS global services.

IOTC, 2019. *Resolution 16/09 On establishing a technical committee on management procedures*, s.l.: Indian Ocean Tuna Commission.

IOTC, 2021. *Resolution 21/01 On an interim plan for rebuilding the Indian Ocean yellowfin tuna stock in the IOTC area of competence*, s.l.: Indian Ocean Tuna Commission.

ISSF, 2023. *Status of the World Fisheries for Tuna*, Pittsburgh: International Seafood Sustainability Foundation.