APPENDIX 10
EXECUTIVE SUMMARY: INDO-PACIFIC KING MACKEREL (2025)

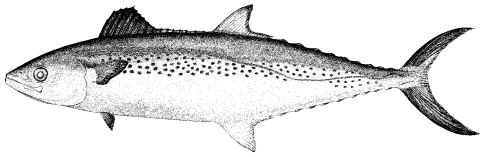

TABLE 1. Status of Indo-Pacific king mackerel (*Scomberomorus guttatus*) in the Indian Ocean

Area[1]	Indicators		2024 stock status determination[3]
Indian Ocean	Catch (2024) (t)	42,275[2]	**27%**
	Mean annual catch (2020-2024) (t)	36,994	
	MSY (1,000 t)	47 (39–56)	
	F_{MSY}	0.74 (0.56–0.99)	
	B_{MSY} (1,000 t)	63.1 (43.1–92.4)	
	$F_{current}/F_{MSY}$	0.95 (0.82–2.13)	
	$B_{current}/B_{MSY}$	1.02 (0.46–1.19)	
	$B_{current}/B_0$	0.51 (0.23–0.60)	

[1]Stock boundaries defined as the IOTC area of competence;
[2]Proportion of catch fully or partially estimated for 2024: 45.4 %;
[3]2022 is the final year that data were available for this assessment

Colour key	Stock overfished ($SB_{year}/SB_{MSY}< 1$)	Stock not overfished ($SB_{year}/SB_{MSY}\geq 1$)
Stock subject to overfishing ($F_{year}/F_{MSY}> 1$)	24%	24%
Stock not subject to overfishing ($F_{year}/F_{MSY}\leq 1$)	25%	27%
Not assessed/Uncertain/Unknown		

INDIAN OCEAN STOCK – MANAGEMENT ADVICE

Stock status. No new stock assessment was conducted for Indo-Pacific king mackerel in 2025 and so the results are based on the results of the assessment carried out in 2024 which examined a number of data-limited methods including CMSY and CMSY++ (based on data up to 2022). Analysis using the catch only method CMSY indicates the stock is being exploited at a rate that is below F_{MSY} in recent years and that the stock appears to be above B_{MSY}, although the estimates would be more pessimistic if the stock productivity is assumed to be less resilient. An assessment using CMSY++ was also explored in 2024. The stock estimates with CMSY++ are estimated to be very close to the biomass target even though the stock status is more pessimistic than with CMSY. Despite some of the caveats of the underlying assumptions, the catch-only model has provided a more defensible approach in addressing the uncertainty of key parameters and the currently available catch data for the Indo-Pacific king mackerel appear to be of sufficient quality. Based on the weight-of-evidence currently available, the stock is considered to be **not overfished and not subject to overfishing** (**Table 1; Fig. 1**).

Outlook. Total annual catches for Indo-Pacific king mackerel have increased steadily over time, reaching a peak of approximatively 43,000 t in 2009 and have since fluctuated between around 30,000 t and 42,275 t. There is considerable uncertainty about stock structure and total catches. Aspects of the fisheries for this species, combined with the limited data on which to base a more complex assessment (e.g., integrated models), are a cause for concern. Although data-poor methods are used to provide stock status advice, further refinements to the catch-only methods and application of additional data-poor approaches may improve confidence in the results. Research emphasis should be focused on collating catch per unit effort (CPUE) time series for the main fleets, size compositions and life trait history parameters (e.g., estimates of growth, natural mortality, maturity, etc.).

Management advice. Reported catches of Indo-Pacific king mackerel in the Indian Ocean have increased considerably since the late 2000s.
Indonesia has recently revised its catch estimates for neritic tuna and seerfish species. The updated catch for Indo-Pacific king mackerel differs substantially from those previously reported and used in the stock assessment. These changes are expected to have a significant impact on estimates of stock status and associated MSY-based reference quantities, which were primarily based on the earlier catch data. An updated assessment is therefore urgently required to revise stock estimates and management advice that incorporate and reflect the most recent catch information. A precautionary approach to management is recommended.

The following should be also noted:

- Limit reference points: the Commission has not adopted limit reference points for any of the neritic tunas or seerfish under its mandate;
- Research emphasis should be focused on collating catch per unit effort (CPUE) time series for the main fleets, size compositions and life trait history parameters (e.g. estimates of growth, natural mortality, maturity, etc.).
- Accurate and consistent catch series data constitute a critical prerequisite for the robust execution of stock assessments. Additional efforts may be beneficial to enhance the reliability of the catch series data being submitted to IOTC;
- Further work is needed to improve the reliability of the catch series from some fisheries wherever necessary. Reported catches should be verified or estimated where needed, based on expert knowledge of the history of the various fisheries or through statistical extrapolation methods;
- Data collection and reporting urgently needed to be improved, given the limited information submitted by CPCs on total catches, catch and effort and size data for neritic tunas, despite their mandatory reporting status. In the case of 2022 74.8% of the total catches of Indo-Pacific king mackerel was either fully or partially estimated by the IOTC Secretariat, which increases the uncertainty of the stock assessments using these data. Therefore, the management advice to the Commission includes the need for CPCs to comply with IOTC data requirements per Resolution 15/01 and 15/02.

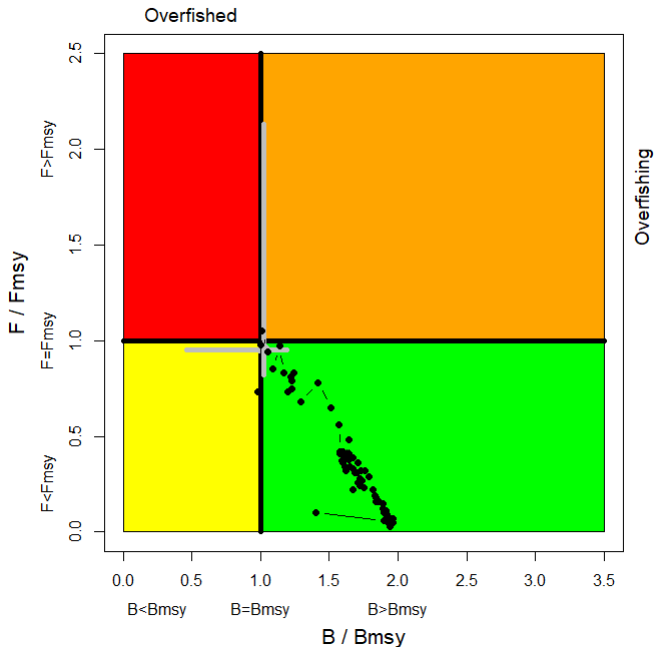

Fig. 1 Kobe plot of the CMSY assessment for the Indo-Pacific king mackerel. The Kobe plot shows the trajectories (geometric mean) of the range of plausible model options included in the formulation of the final management advice. The grey cross represents the estimated stock status in 2022 (median and 80% confidence interval).

Fisheries overview.

- **Main fisheries (mean annual catch 2020-2024)**: Indo-pacific king mackerel are caught using gillnet (62.1%), followed by other (22.7%) and line (12.2%). The remaining catches taken with other gears contributed to 2.9% of the total catches in recent years (**Fig. 2**).

- **Main fleets (mean annual catch 2020-2024:** the majority of Indo-pacific king mackerel catches are attributed to vessels flagged to India (34.2%) followed by I. R. Iran (28.9%) and Indonesia (13.9%). The 15 other fleets catching Indo-pacific king mackerel contributed to 23% of the total catch in recent years (**Fig. 3**).

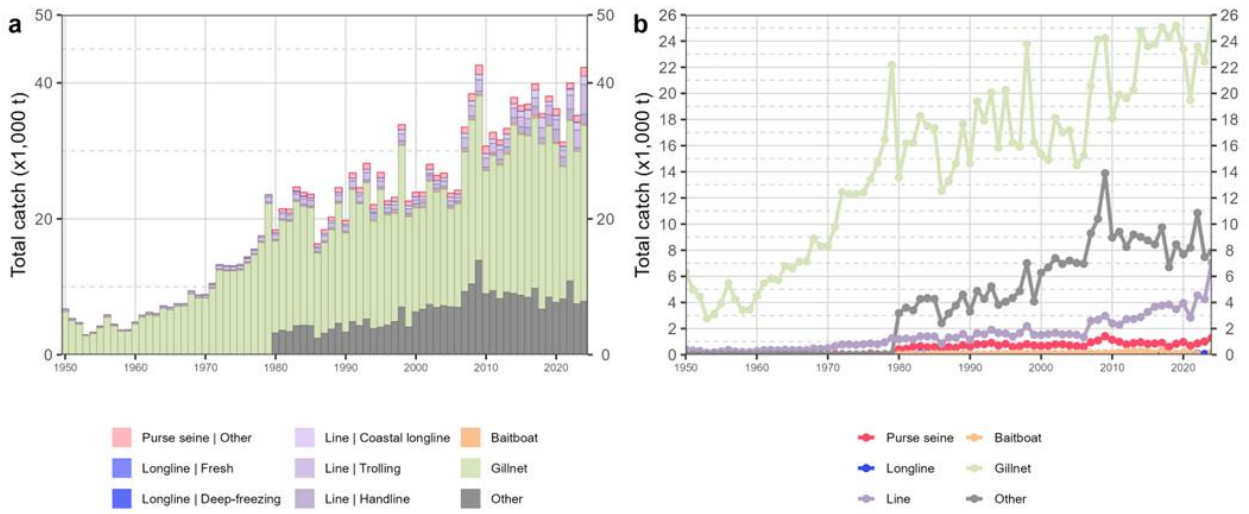

Fig. 2. Annual time series of (a) cumulative retained catches (t) by fishery and (b) individual retained catches (t) by fishery group for Indo-Pacific king mackerel during 1950-2024. Purse seine | Other: coastal purse seine, large-scale purse seine, and ring net; Longline | Other: swordfish and sharks-targeted longlines; Other: all remaining fishing gears

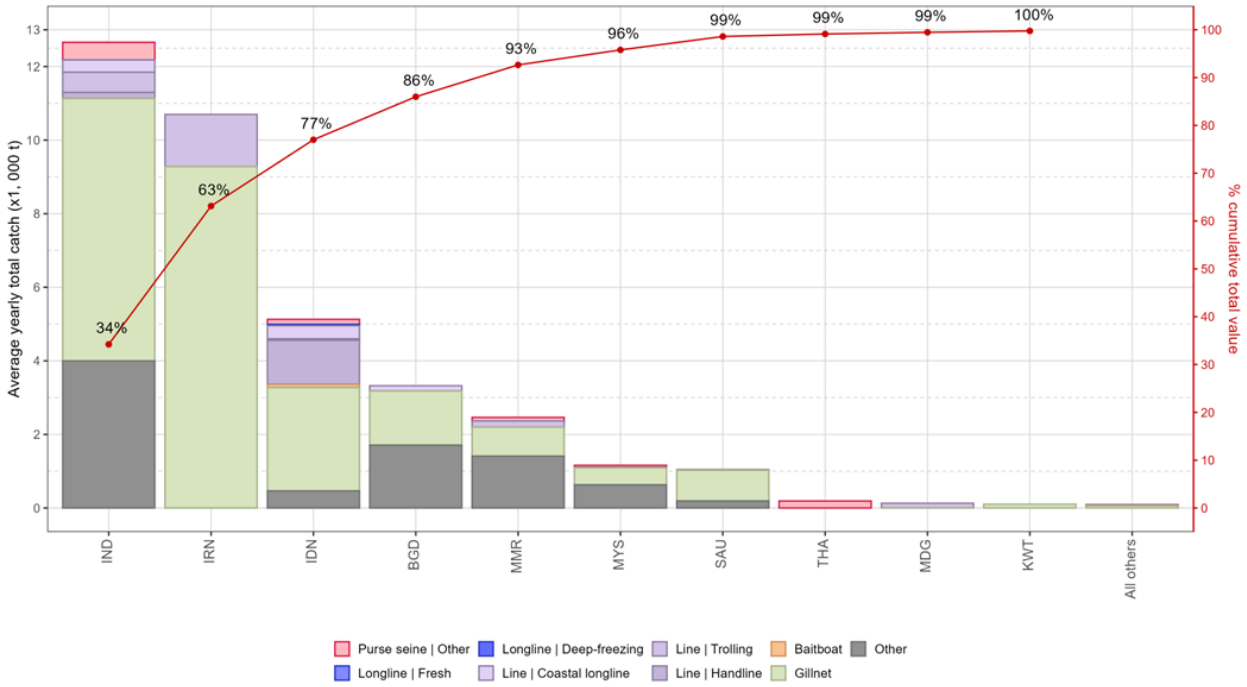

Fig. 3. Mean annual retained catches (t) of Indo-Pacific king mackerel by fleet and fishery between 2020 and 2024, with indication of cumulative catches by fleet. Purse seine | Other: coastal purse seine, large-scale purse seine, and ring net; Longline | Other: swordfish and sharks-targeted longlines; Other: all remaining fishing gears