Food and Agriculture Organization of the United Nations

Indian Ocean Tuna Commission
Commission des Thons de l'Ocean Indien
iotc ctoi

APPENDIX 7
EXECUTIVE SUMMARY: FRIGATE TUNA (2026)

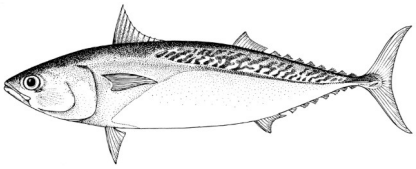

TABLE 1. Status of frigate tuna (*Auxis thazard*) in the Indian Ocean

Area[1]	Indicators		2024 stock status determination[3]
Indian Ocean	Catch (2025) (t)	169,048[2]	Unknown
	Mean annual catch (2021-2025) (t)	123,588	
	MSY (1,000 t) (80% CI)	Unknown	
	F_{MSY} (80% CI)		
	B_{MSY} (1,000 t) (80% CI)		
	$F_{current}/F_{MSY}$ (80% CI)		
	$B_{current}/B_{MSY}$ (80% CI)		
	$B_{current}/B_0$ (80% CI)		

[1]Stock boundaries defined as the IOTC area of competence;
[2]Proportion of catch fully or partially estimated for 2025: 1.7%; [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 ($F_{year}/F_{MSY}> 1$)		
Stock not subject to overfishing ($F_{year}/F_{MSY}\leq 1$)		
Not assessed/Uncertain / Unknown		

INDIAN OCEAN STOCK – MANAGEMENT ADVICE

Stock status. No new stock assessment was conducted in 2026 for frigate tuna and so the results are based on the results of the assessment carried out in 2024 which examined a number of data-limited methods include CMSY, OCOM, LB-SPR and fishblicc models (based on data up to 2022). However the catch data for frigate tuna are very uncertain given the high percentage of the catches that had to be estimated due to a range of reporting issues. Due to a lack of fishery data for several gears, only preliminary stock status indicators can be used. However, the size-based assessment showed results with considerable uncertainty - LB-SPR estimated a SPR greater than the reference level of SPR40%, (a proxy for 40% depletion often considered as risk averse target in many data-poor fisheries) whereas the fishblicc estimated a SPR below the reference level. Aspects of the fisheries for frigate tuna combined with the lack of data on which to base an assessment of the stock are a cause for considerable concern. Stock status in relation to the Commission's B_{MSY} and F_{MSY} reference points remains **unknown** (**Table 1**).

Outlook. Estimated catches have increased steadily since the late-1970s, reaching around 30,000 t in the mid-1990s, t, and steadily increasing to over 90,000 t in the following ten years. In recent years catches have increased to over 140,000 t, rising to the highest levels recorded There is insufficient information to evaluate the effect that this level of catch or a further increase in catches may have on the resource.

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. For assessed species of neritic tunas in Indian Ocean (longtail tuna, kawakawa and narrow-barred Spanish mackerel), the MSY was estimated during early assessments to have been reached between 2009 and 2011 and both F_{MSY} and B_{MSY} were breached thereafter. It is worth noting that the catch in 2024 was estimated to be 144,447t and there has been significant variability in estimated catches of this species in recent years. This variation is perhaps due to issue of mis-identification of this species among other reasons. In the absence of an accepted stock assessment for frigate tuna, a limit to the catches should be considered by the Commission, by ensuring that future catches do not continue to exceed the average catches estimated between 2009 and 2011 (75,830 t). The reference period (2009-2011) was chosen based on the most recent assessments of those neritic species in the Indian Ocean for which an assessment is available under the assumption that MSY for frigate tuna was also reached between 2009 and 2011. This catch advice should be maintained until an assessment of frigate tuna is available. Considering that MSY-based reference points for assessed species can change over time, the stock should be closely monitored. Mechanisms need to be developed by the Commission to improve current statistics by encouraging CPCs to comply with their recording and reporting requirements, so as to better inform scientific advice.

The following should be also noted:

- The Maximum Sustainable Yield estimate for the Indian Ocean stock is unknown;
- Limit reference points: the Commission has not adopted limit reference points for any of the neritic tunas under its mandate;
- 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;
- 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.)
- Species identification, data collection and reporting urgently need to be improved;
- There is 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 catches (reference year 2021), 80% of the total catches were 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.

Fisheries overview.

- **Main fisheries (mean annual catch 2021-2025)**: frigate tuna are caught using gillnet (41.6%), followed by purse seine (30.8%) and line (15.6%). The remaining catches taken with other gears contributed to 12% of the total catches in recent years (**Fig. 1**);
- **Main fleets (mean annual catch 2021-2025)**: the majority of frigate tuna catches are attributed to vessels flagged to Indonesia (49.4%) followed by India (14.4%) and Pakistan (7.7%). The 26 other fleets catching frigate tuna contributed to 28.4% of the total catch in recent years (**Fig. 2**).

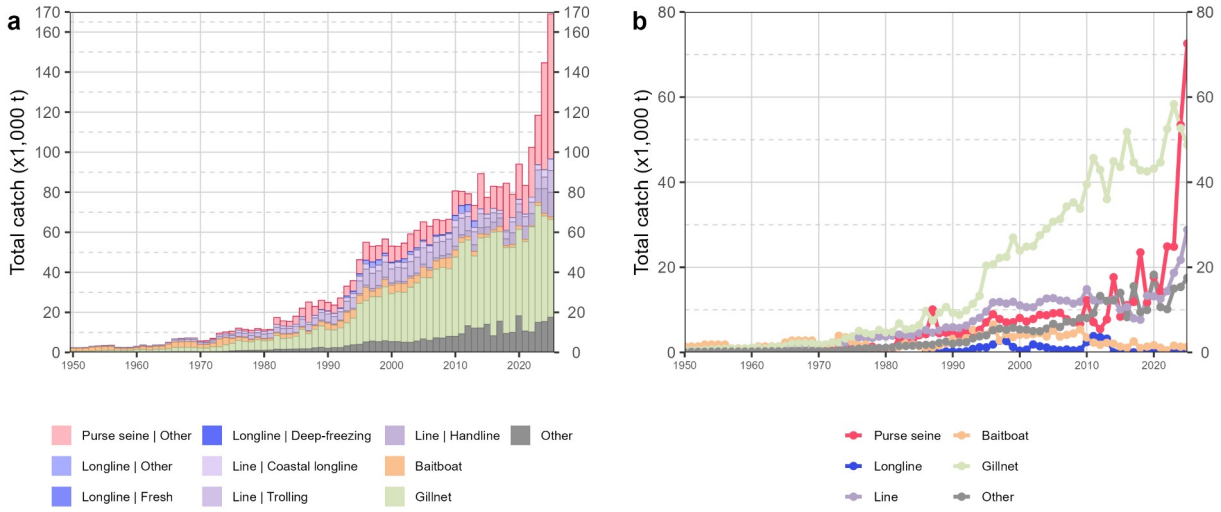

Fig. 1. Annual time series of (a) cumulative retained catches (t) by fishery and (b) individual retained catches (t) by fishery group for frigate tuna during 1950-2025. Purse seine | Other: coastal purse seine, large-scale purse seine, and ring net; Longline | Other: swordfish and sharks-targeted longlines; Other: all remaining fishing gears

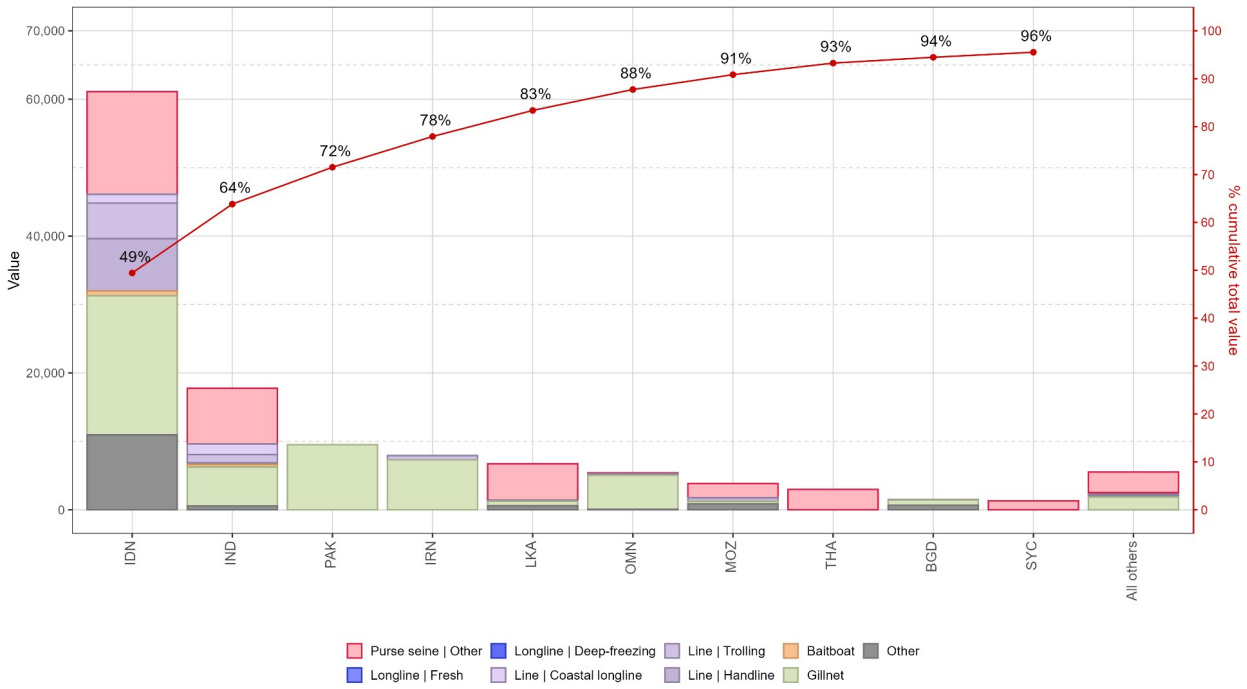

Fig. 2. Mean annual catches (t) of frigate tuna by fleet and fishery between 2021 and 2025, with indication of cumulative catches by fleet. Purse seine | Other: coastal purse seine, large-scale purse seine, and ring net; Longline | Other: swordfish and sharks-targeted longlines; Other: all remaining fishing gears