# APPENDIX 9
# EXECUTIVE SUMMARY: LONGTAIL TUNA (2021)

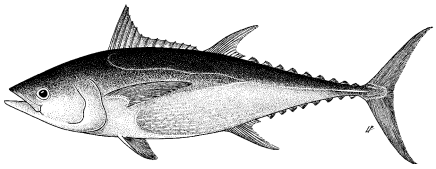

**TABLE 1.** Longtail tuna: Status of longtail tuna (*Thunnus tonggol*) in the Indian Ocean.

| Area[1] | Indicators | | 2020 stock status determination |
|---|---|---|---|
| Indian Ocean | Catch 2019[2] (t)<br>Average catch 2015–2019 (t) | 112,867<br>135,070 | **76%** |
| | MSY (t) (80% CI)<br>$F_{MSY}$ (80% CI)<br>$B_{MSY}$ (t) (80% CI)<br>$F_{current}/F_{MSY}$ (80% CI)<br>$B_{current}/B_{MSY}$ (80% CI) | 128,750 (99,902 – 151,357)<br>0.32 (0.15 – 0.66)<br>395,460 (129,240 – 751,316)<br>1.52 (0.751 – 2.87)<br>0.69 (0.45 – 1.21) | |

[1] Boundaries for the Indian Ocean stock assessment are defined as the IOTC area of competence.
[2] Proportion of catches estimated or partially estimated by IOTC Secretariat in 2019: 28%

| Colour key | Stock overfished($B_{year}/B_{MSY}$< 1) | Stock not overfished ($B_{year}/B_{MSY}$≥ 1) |
|---|---|---|
| Stock subject to overfishing($F_{year}/F_{MSY}$> 1) | 76% | 2% |
| Stock not subject to overfishing ($F_{year}/F_{MSY}$≤ 1) | 2% | 20% |
| Not assessed/Uncertain | | |

## INDIAN OCEAN STOCK – MANAGEMENT ADVICE

***Stock status.*** No new assessment was conducted for longtail tuna in 2021 and so the results are based on the assessment carried out in 2020 using the Optimised Catch-Only Method (OCOM). Analysis using the OCOM indicates that the stock is being exploited at a rate that exceeded $F_{MSY}$ in recent years and that the stock appears to be below $B_{MSY}$ and above $F_{MSY}$ (76% of plausible models runs) (**Fig. 2**). Catches were above MSY between 2010 and 2018 but steadily declined from 2012 to were less than 113,000 t in 2019, below the estimated MSY (**Fig. 1**). The $F_{2018}/F_{MSY}$ ratio is slightly higher than previous estimates. The estimate of the $B_{2018}/B_{MSY}$ ratio (0.69) was lower than in previous years, reflecting declining abundance. An assessment using a biomass dynamic model incorporating gillnet CPUE indices was also undertaken in 2020 and results were consistent with OCOM in terms of status. Therefore, based on the weight-of-evidence currently available, the stock is considered to be both **overfished** and **subject to overfishing** (**Table 1**; **Fig. 2**).

***Outlook.*** There remains considerable uncertainty about the total catches of longtail tuna in the Indian Ocean. The increase in annual catches to a peak in 2012 increased the pressure on the longtail tuna Indian Ocean stock, although the catch trend has reversed since then. As noted in 2015, the apparent fidelity of longtail tuna to particular areas/regions is a matter for concern as overfishing in these areas can lead to localised depletion. 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.*** The catch in 2019 was below the estimated MSY but the exploitation rate has been increasing over the last few years, as a result of the declining abundance. Despite the substantial uncertainties, this suggests that the stock is very close to being fished at MSY levels and that higher catches may not be sustained. A precautionary approach to management is recommended.

The following should be also noted:

- The Maximum Sustainable Yield estimate of around 128,750 t was exceeded between 2011 and 2018. Limits to catches are warranted to recover the stock to the $B_{MSY}$ level.
- Limit reference points: The Commission has not adopted limit reference points for any of the neritic tunas under its mandate.
- Further work is needed to improve the reliability of the catch series. Reported catches should be verified or estimated, based on expert knowledge of the history of the various fisheries or through statistical extrapolation methods.
- Improvements in data collection and reporting are required if the stock is to be assessed using integrated stock assessment models.
- Research emphasis should be focused on collating catch per unit effort (CPUE) time series for the main fleets (I.R. Iran, Indonesia, Pakistan, Sultanate of Oman and India), size compositions and life trait history parameters (e.g. estimates of growth, natural mortality, maturity, etc.).
- 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 2020 catches (reference year 2019) 30% 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.
- **Main fishing gear (average catches 2015-2019)**: Longtail tuna are caught mainly using gillnets (~73% of catches) and, to a lesser extent, coastal purse seine nets (~7%) and handline and trolling (~10%) (**Fig. 1**).
- **Main fleets (average catches 2015-2019)**: 42% of the catches of longtail in the Indian Ocean are accounted for by I.R. Iran, followed by Indonesia (~19%), Sultanate of Oman (~12%), and Pakistan (~11%).

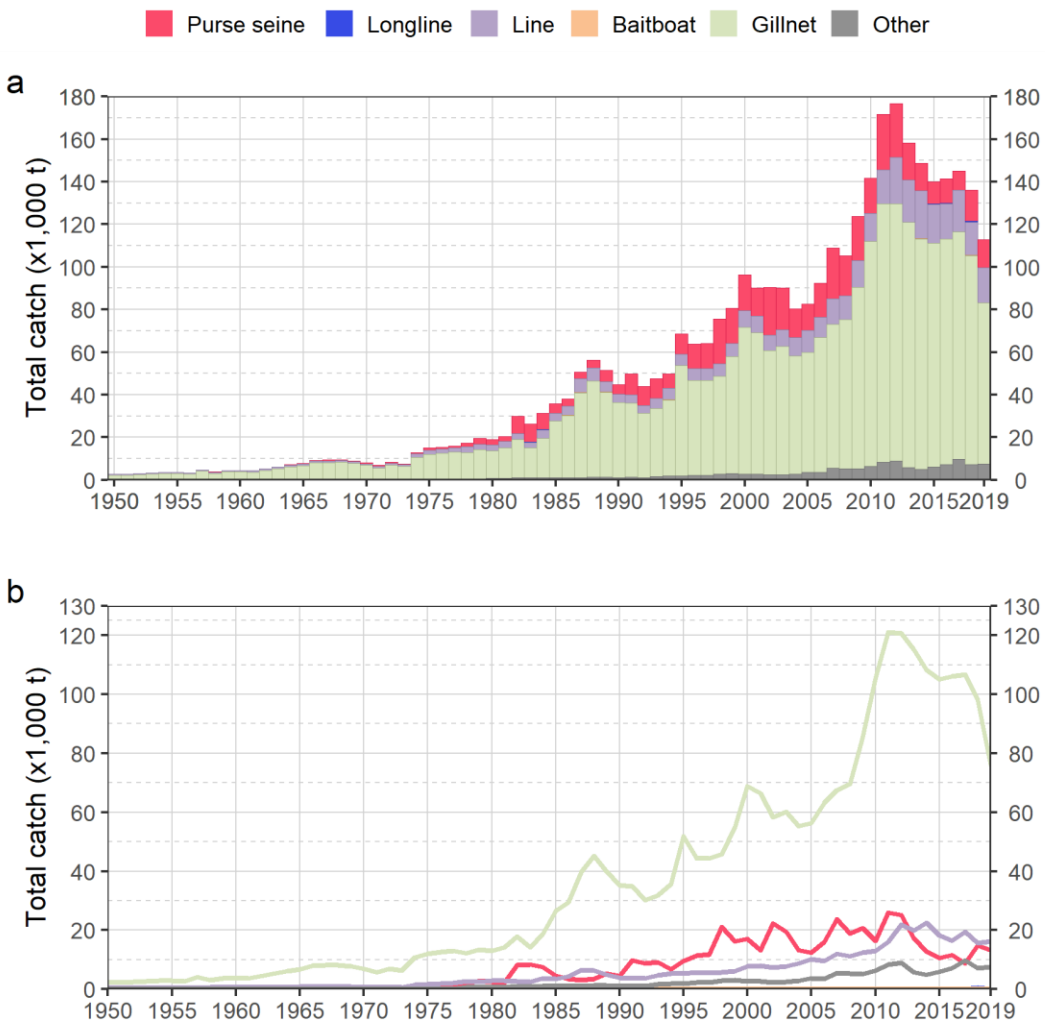


**Fig. 1.** Annual time series of (a) cumulative and (b) individual nominal catches (t) by gear group for longtail tuna during 1950–2019. Purse seine: coastal purse seine, purse seine, ring net; Line: coastal longline, hand line, troll line; Gillnet: coastal and offshore gillnets, driftnet; Other: all remaining fishing gears

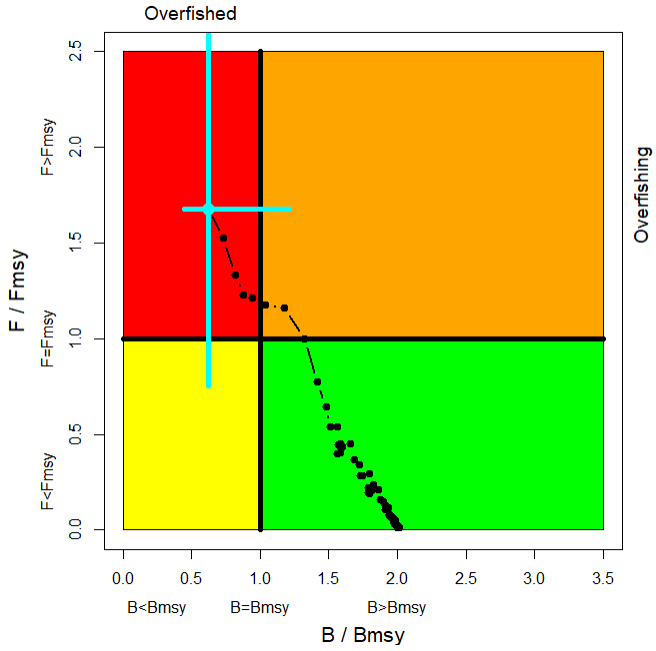


**Fig. 2.** Longtail tuna OCOM Indian Ocean assessment Kobe plot. The Kobe plot presents the trajectories (geometric mean) for the range of plausible model options included in the formulation of the final management advice. The blue cross represents the estimate of stock status in 2018 (median and 80% confidence interval).