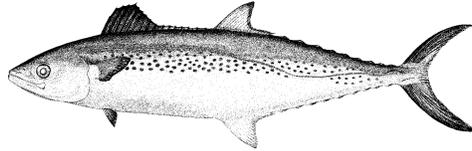


## APPENDIX 21

### EXECUTIVE SUMMARY: INDO-PACIFIC KING MACKEREL (2020)



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

Area <sup>1</sup>	Indicators		2020 stock status determination
Indian Ocean	Catch 2019 <sup>2</sup> (MT)	42,488	
	Average catch 2015-2019 (MT)	44,833	
	MSY (1,000 MT)	Unknown	
	F <sub>MSY</sub>	Unknown	
	B <sub>MSY</sub> (1,000 MT)	Unknown	
	F <sub>current</sub> /F <sub>MSY</sub>	Unknown	
B <sub>current</sub> /B <sub>MSY</sub>	Unknown		
	B <sub>current</sub> /B <sub>0</sub>	Unknown	

<sup>1</sup> Boundaries for the Indian Ocean stock assessment are defined as the IOTC area of competence

<sup>2</sup> Proportion of 2019 catch estimated or partially estimated by IOTC Secretariat: 39%

Colour key	Stock overfished (SB <sub>year</sub> /SB <sub>MSY</sub> < 1)	Stock not overfished (SB <sub>year</sub> /SB <sub>MSY</sub> ≥ 1)
Stock subject to overfishing (F <sub>year</sub> /F <sub>MSY</sub> > 1)		
Stock not subject to overfishing (F <sub>year</sub> /F <sub>MSY</sub> ≤ 1)		
Not assessed/Uncertain		

#### INDIAN OCEAN STOCK – MANAGEMENT ADVICE

**Stock status.** No new stock assessment for Indo-Pacific king mackerel was carried out in 2019, thus, the stock status is determined on the basis of the 2016 assessment when a preliminary assessment was undertaken using catch-only methods techniques (Catch-MSY and OCOM). The OCOM model, which was considered the more robust of the two catch-only models in terms of assumptions and treatment of priors, indicated that overfishing was not occurring and the stock was not overfished. The continuing uncertainty in catches (37% estimated) for this species, combined with the highly variable and uncertain estimates of growth parameters used to estimate model priors, warrant caution in interpreting the model results for Indo-Pacific king mackerel. Given that no new assessment was undertaken in 2020, the WPNT considered that stock status in relation to the Commission's B<sub>MSY</sub> and F<sub>MSY</sub> target reference points remains **unknown** (Table 1).

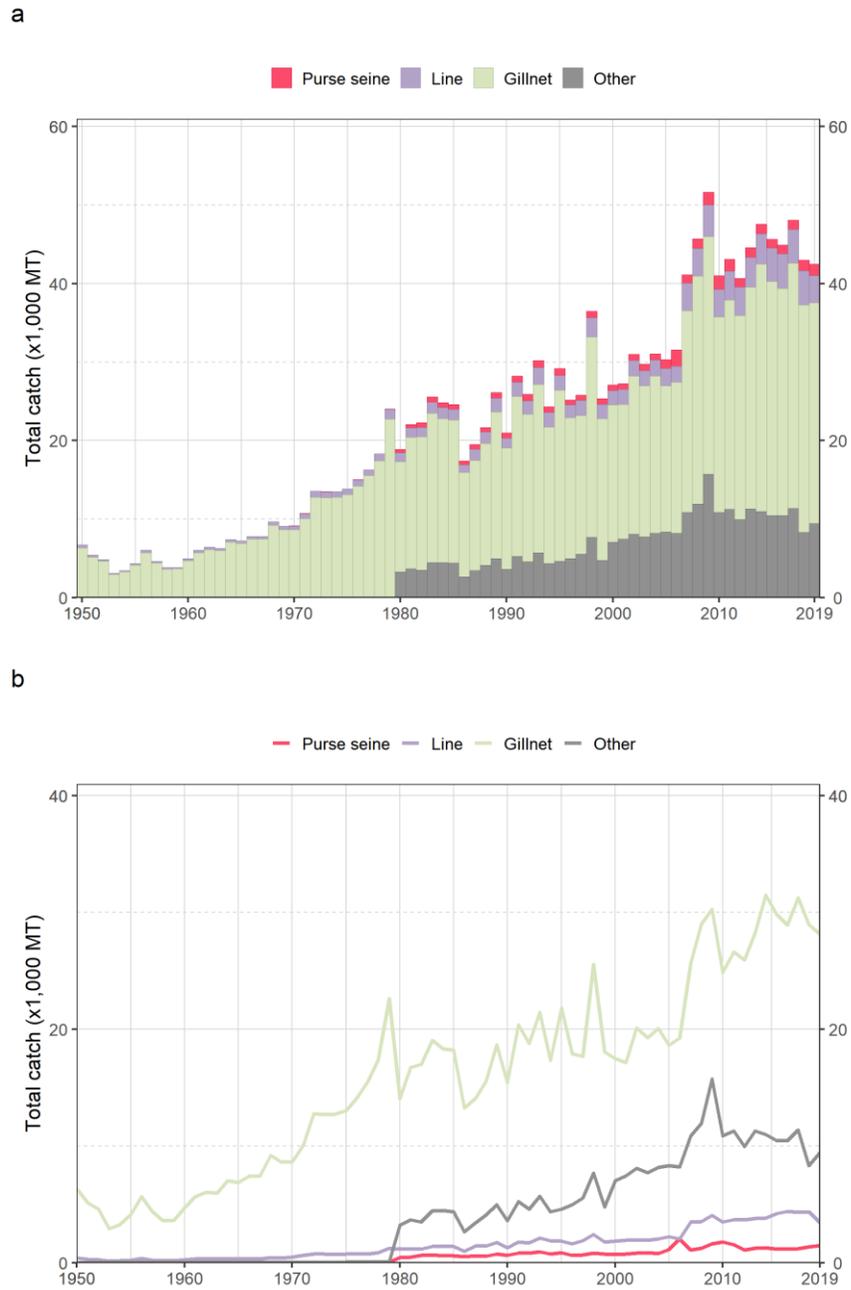
**Outlook.** Total annual catches for Indo-Pacific king mackerel have increased steadily over time, reaching a peak of 51,600 MT in 2009 and have since fluctuated between around 40,000 MT and 48,000 MT. There is considerable uncertainty about stock structure and total catches. Aspects of the fisheries 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 yet to be 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.** For assessed species of neritic tunas in Indian Ocean (longtail tuna, kawakawa and narrow barred Spanish mackerel), the MSY was estimated to have been reached between 2009 and 2011 and both  $F_{MSY}$  and  $B_{MSY}$  were breached thereafter. Therefore, in the absence of a stock assessment of Indo-Pacific king mackerel a limit to the catches should be considered by the Commission, by ensuring that future catches do not exceed the average catches between 2009 and 2011 estimated at the time of the assessment (46,787 MT). 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 also for Indo-Pacific king mackerel MSY was reached between 2009 and 2011. This catch advice should be maintained until an assessment of Indo-Pacific king mackerel is available. This catch advice should be maintained until an assessment of Indo-Pacific king mackerel 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:

- Limit reference points: The Commission has not adopted limit reference points for any of the neritic tunas 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.).
- 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.
- 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 2019 catches (reference year 2018) 34% 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 gears (average catches 2015-19):** Indo-Pacific King mackerel are caught mainly by gillnets (~66%), however significant numbers are also caught by trawling (~18%) and trolling (7%) (**Fig. 1**).
- **Main fleets (average catches 2015-19):** Almost two-thirds of catches are accounted for by fisheries in India and Indonesia; with important catches also reported by I.R. Iran (~20%).



**Fig. 1.** Annual time series of (a) cumulative and (b) individual nominal catches (MT) by gear group for Indo-Pacific king mackerel 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