

APPENDIX 21 EXECUTIVE SUMMARY: SILKY SHARK (2023)

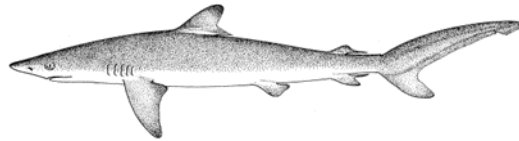


Table 1. Status of silky shark (*Carcharhinus falciformis*) in the Indian Ocean.

Area ¹	Indicators	2018 stock status determination
Indian Ocean	Reported catch 2022 (t) ³ 1,426 Not elsewhere included (nei) sharks ² 2022 (t) 32,558 Average reported catch 2018-22 (t) 1,755 Av. Not elsewhere included (nei) sharks ² 2018-22 (t) 31,303	Unknown
	MSY (1,000 t) (80% CI) F _{MSY} (80% CI) SB _{MSY} (1,000 t) (80% CI) F _{current} /F _{MSY} (80% CI) SB _{current} /SB _{MSY} (80% CI) SB _{current} /SB ₀ (80% CI)	

¹Boundaries for the Indian Ocean = IOTC area of competence

²Includes all other shark catches reported to the IOTC Secretariat, which may contain this species (i.e., SKH: Various sharks nei; RSK: requiem sharks nei).

³Proportion of 2022 catch estimated or partially estimated by IOTC Secretariat: 26.4%

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

Table 2. Silky shark: IUCN threat status of silky shark (*Carcharhinus falciformis*) in the Indian Ocean.

Common name	Scientific name	IUCN threat status ³		
		Global status	WIO	EIO
Silky shark	<i>Carcharhinus falciformis</i>	Vulnerable	-	-

IUCN = International Union for Conservation of Nature; WIO = Western Indian Ocean; EIO = Eastern Indian Ocean

³The process of the threat assessment from IUCN is independent from the IOTC and is presented for information purpose only

Sources IUCN Red List 2020, Rigby 2021

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Stock status. There remains considerable uncertainty about the relationship between abundance and the nominal CPUE series from the main longline fleets, and about the total catches over the past decade (**Table 1**). The ecological risk assessment (ERA) conducted for the Indian Ocean by the WPEB and SC in 2018 consisted of a semi-quantitative risk assessment analysis to evaluate the resilience of shark species to the impact of a given fishery, by combining the biological productivity of the species and its susceptibility to each fishing gear type (Murua *et al.* 2018). Silky shark received a high vulnerability ranking (No. 2) in the ERA rank for longline gear because it was estimated to be one of the least productive shark species, and with a high susceptibility to longline gear. Silky shark was estimated to be the fifth most vulnerable shark species in the ERA ranking for purse seine gear, due to its low productivity and high susceptibility to purse seine gear. The current IUCN threat status of this species globally is 'Vulnerable' (**Table 2**). There is a paucity of information available on this species, but several studies have been carried out for this species in the recent years. CPUE derived from longline fishery observations indicated a decrease from 2009 to 2011 with a stable pattern onward. A preliminary stock assessment was run in 2018 but could not be updated in 2019. This assessment is extremely uncertain, however, and so the population status of silky sharks in the Indian Ocean is considered uncertain. Silky sharks are commonly taken by a range of fisheries in the Indian Ocean. Because of their life history characteristics – they are relatively long lived (over 20 years), mature relatively late (at 6–12 years), and have relatively few offspring (<20 pups every two years), the silky shark can be vulnerable to overfishing. Despite the lack of data, there is some anecdotal information suggesting that silky shark abundance has declined over recent decades, including from Indian longline research surveys, which are described in the IOTC Supporting Information for silky shark sharks. There is no quantitative stock assessment or basic fishery indicators currently available for silky shark in the Indian Ocean therefore the stock status is **unknown**.

Outlook. The impact of piracy in the western Indian Ocean has resulted in the displacement and subsequent concentration of a substantial portion of longline fishing effort into certain areas in the southern and eastern Indian Ocean. Some longline vessels have returned to their traditional fishing areas in the northwest Indian Ocean, due to the increased security onboard vessels, with the exception of the Japanese fleet which has still not returned to the levels seen before the start of the piracy threat. It is therefore unlikely that catch and effort on silky shark has declined in the southern and eastern areas and may have resulted in localised depletion there.

Management advice. Despite the absence of stock assessment information, the Commission should consider taking a cautious approach by implementing some management actions for silky sharks. While mechanisms exist for encouraging CPCs to comply with their recording and reporting requirements (Resolution 18/07), these need to be further implemented by the Commission so as to better inform scientific advice.

Mitigation measures should be taken to reduce at-vessel and post release mortality, including consideration of potential gear modifications in longline fleets targeting tuna and swordfish. Noting that a recent study (Bigelow *et al.* 2021) concluded in WCPFC that banning both shark lines and wire leaders has the potential to reduce fishing mortality by 30.8% for silky shark.

The following key points should also be noted:

- **Maximum Sustainable Yield (MSY):** Unknown.
- **Reference points:** Not applicable.
- **Main fishing gear (2018-22):** Gillnet; offshore gillnet; longline; longline (fresh), trolling
- **Main fleets (2018-22):** Sri Lanka, I.R. Iran; Pakistan, Taiwan, China; (reported as discarded/released alive by: China, EU-France, Mauritius, EU-Spain, Korea, Tanzania).

LITERATURE CITED

- Bigelow, K. and Carvalho, F. 2021. Review of potential mitigation measures to reduce fishing-related mortality on silky and oceanic whitetip sharks (Project 101). WCPFC Scientific Committee 17th Regular Session. WCPFC-SC17-2021/EB-WP-01. Available: <https://meetings.wcpfc.int/node/12598>
- Murua H, Santiago, J, Coelho, R, Zudaire I, Neves C, Rosa D, Semba Y, Geng Z, Bach P, Arrizabalaga, H., Baez JC, Ramos ML, Zhu JF and Ruiz J. (2018). Updated Ecological Risk Assessment (ERA) for shark species caught in fisheries managed by the Indian Ocean Tuna Commission (IOTC). IOTC–2018–SC21–14_Rev_1.
- Rigby, C.L., Sherman, C.S., Chin, A. & Simpfendorfer, C. 2021. *Carcharhinus falciformis* (amended version of 2017 assessment). The IUCN Red List of Threatened Species 2021: e.T39370A205782570. <https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T39370A205782570.en>. Accessed on 06 December 2023.