# APPENDIX 12
# EXECUTIVE SUMMARY: BLACK MARLIN (2026)

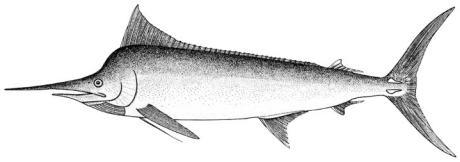


**TABLE 1.** Status of black marlin (*Istiompax indica*) in the Indian Ocean

| Area[1] | Indicators | | 2024 stock status determination[3] |
|---|---|---|---|
| Indian Ocean | Catch 2025 (t) | 22,433[2] | 62.2% |
| | Average catch 2021–2025 (t) | 23,394 | |
| | MSY (1,000 t) (80% CI) | 13.90 (8.73 – 28.51) | |
| | $F_{MSY}$ (80% CI) | 0.21 (0.15 - 0.30) | |
| | $B_{MSY}$ (1,000 t) (80% CI) | 65.23 (46.43-101.84) | |
| | $F_{2022}/F_{MSY}$ (80% CI) | 1.39 (0.72 – 2.45) | |
| | $B_{2022}/B_{MSY}$ (80% CI) | 1.35 (0.96 – 1.79) | |
| | $B_{2022}/B_0$ (80% CI) | 0.49 (0.35 – 0.66) | |

[1] Boundaries for the Indian Ocean stock assessment are defined as the IOTC area of competence
[2] Proportion of 2025 catch fully or partially estimated by the IOTC Secretariat: 2%
[3] 2022 is the final year that data were available for this assessment

| Colour key | Stock overfished ($B_{2022}/B_{MSY}$< 1) | Stock not overfished ($B_{2022}/B_{MSY}$≥ 1) |
|---|---|---|
| Stock subject to overfishing ($F_{2022}/F_{MSY}$> 1) | 12.5% | **62.2%** |
| Stock not subject to overfishing ($F_{2022}/F_{MSY}$≤ 1) | 0 | 25.3% |
| Not assessed/Uncertain/Unknown | | |

## INDIAN OCEAN STOCK – MANAGEMENT ADVICE

***Stock status.*** No new stock assessment was carried out for black marlin in 2025, thus, the stock status estimates are based on the stock assessment in 2024 using JABBA, a Bayesian state-space production model (using data up to 2022). The relative point estimates for this assessment are $F/F_{MSY}$=1.39 (0.72-2.45) and $B/B_{MSY}$=1.35 (0.96 -1.79). The Kobe plot indicated that the stock is currently not overfished but is subject overfishing (Table 1; **Fig. 3**). In 2022, the catch of black marlin surged to 26,320 t. Until 2024, fish stock status was characterised as "uncertain" due to significant uncertainties in past assessments (like those from 2018 and 2021). These uncertainties were attributed to both historical catch reporting from key fishing state and poor assessment diagnostics. However, there's been progress recently with black marlin catch data, particularly from coastal countries in the northern Indian Ocean, and the latest JABBA assessment shows it's now more reliable (with improved model fitting to the abundance indices and acceptable level of retrospective patterns). The assessment relied on CPUE indices from longline fisheries

in which the black marlin is a bycatch species. On the weight-of-evidence available in 2024, the stock status of black marlin is determined to be not overfished but subject to overfishing (**Table 1**; **Fig. 3**).

***Outlook.*** While the recent high catches seem to be mainly due to developing coastal fisheries operating in the core habitat of the species (mainly IR. Iran, India and Sri Lanka), the CPUE indicators are from industrial fleets with lower catches of black marlin operating mostly offshore. There has been a substantial increase of catches of black marlin from coastal countries. The outlook is likely to remain uncertain in the absence of CPUE indices from gillnet and coastal longline fleets to inform stock assessment models. Moreover, catches remain substantially higher than the limits stipulated in Res 18/05 and are a cause for concern as this will likely continue to drive the population towards overfished status.

***Management advice.*** The catch limits (9,932 t) as stipulated in Resolution 18/05 have been exceeded for four consecutive years since 2020, which as per resolution 18/05, requires a review of the resolution. Furthermore, these limits are not based on estimates of most recent stock assessment. Thus, it is recommended that the Commission urgently revise 18/05 to incorporate limits that reflect the most recent stock assessment and projections and review and where necessary revise the implementation and effectiveness of the measures contained in this Resolution. The stock is now subject to overfishing. If the Commission wishes to recover the stock to the green quadrant of the Kobe plot with a probability ranging from 60% to 90% by 2026 as per Resolution 18/05, it needs to provide mechanisms to ensure the maximum annual catches remain less than 10,626 t (**Table 3**).

The following key points should be noted:

- **Maximum Sustainable Yield (MSY)**: estimate for the whole Indian Ocean is 13,900 t.
- **Provisional reference points**: Although the Commission adopted reference points for swordfish in Resolution 15/10 *on target and limit reference points and a decision framework*, no such interim reference points nor harvest control rules have been established for black marlin.
- **Main fisheries (mean annual catch 2021-2025**): black marlin are caught using gillnet (68%), followed by line (24.1%) and longline (5%). The remaining catches taken with other gears contributed to 2.9% of the total catches in recent years (**Fig. 1**).
- **Main fleets (mean annual catch 2021-2025)**: the majority of black marlin catches are attributed to vessels flagged to I. R. Iran (45.1%) followed by India (18.8%) and Indonesia (13.5%). The 28 other fleets catching black marlin contributed to 22.5% of the total catch in recent years(**Fig. 2**).

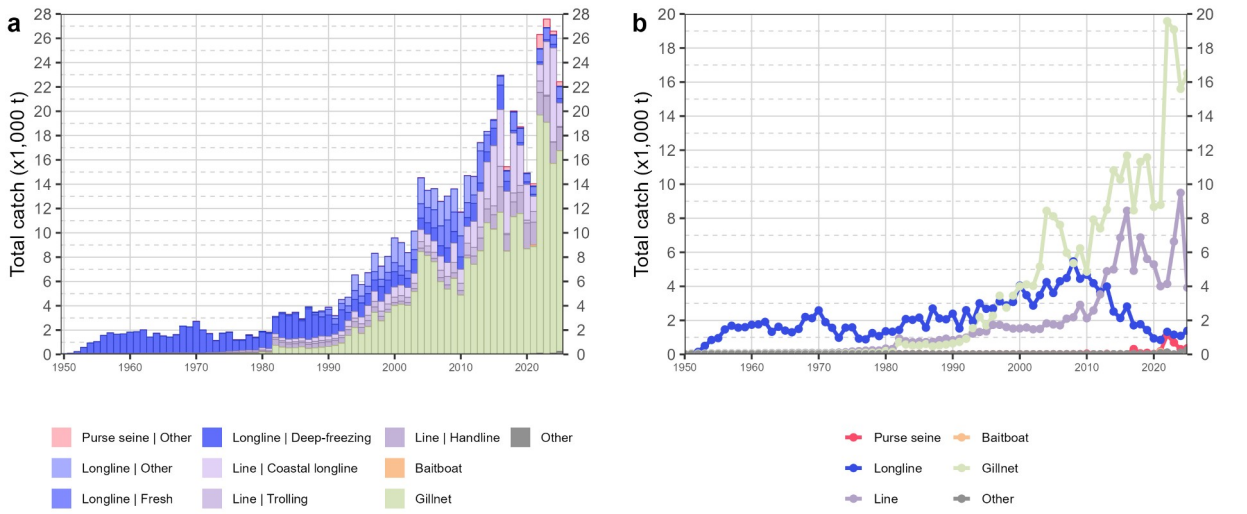



**Fig. 1.** Annual time series of (a) cumulative retained catches (metric tonnes; t) by fishery and (b) individual retained catches (metric tonnes; t) by fishery group for black marlin during 1950-2025. Purse seine | Other: coastal purse seine, large-scale purse seine, and ring net; Longline | Other: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

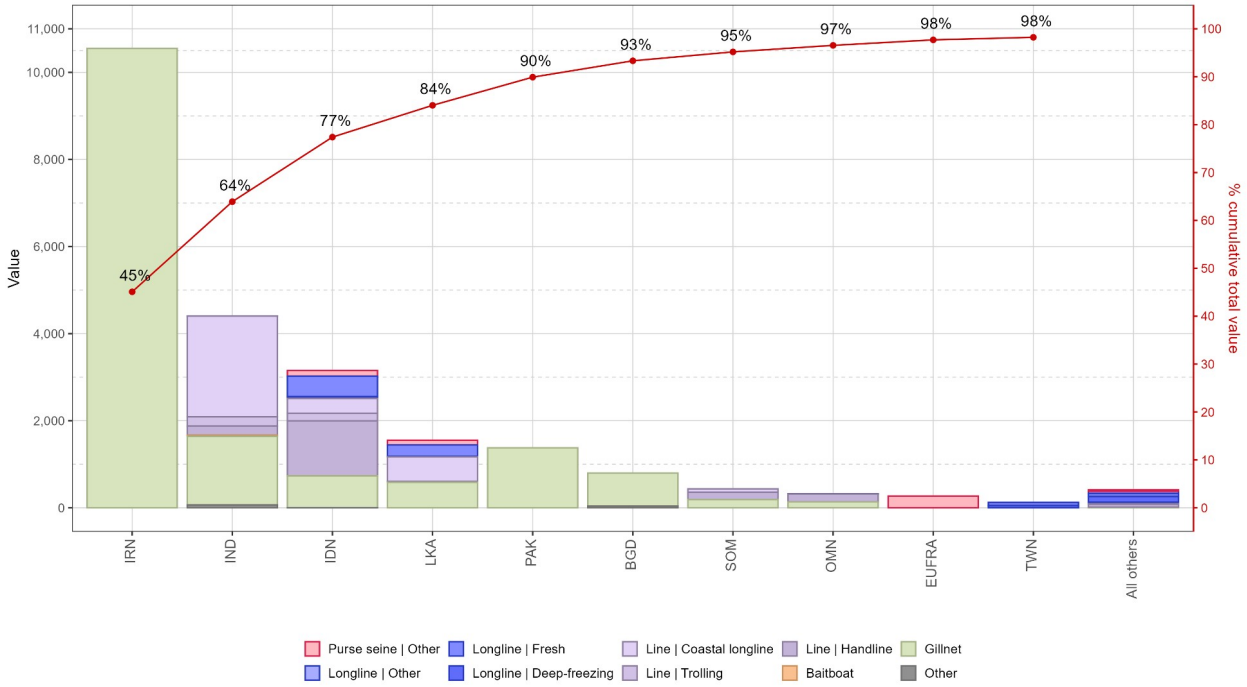



**Fig. 2.** Mean annual retained catches (metric tonnes; t) of black marlin by fleet and fishery between 2021 and 2025, with indication of cumulative catches by fleet. Purse seine | Other: coastal purse seine, large-scale purse seine, and ring net; Longline | Other: swordfish and sharks-targeted longlines;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

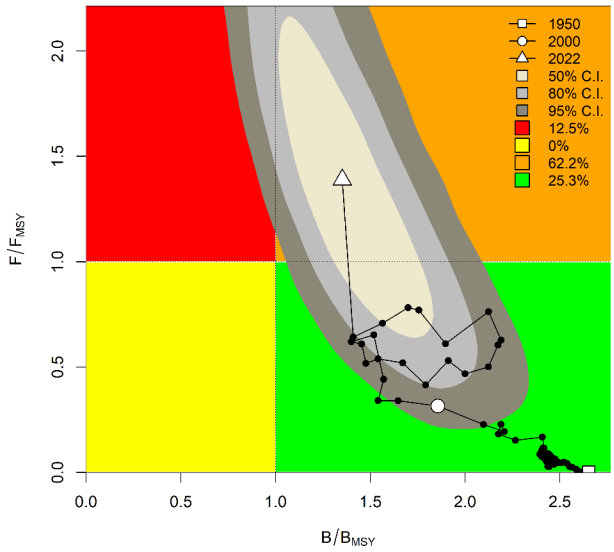



**Fig. 3**. JABBA Indian Ocean assessment Kobe plots for black marlin (contours are the 50, 80 and 95 percentiles of the 2022 estimate). Black line indicates the trajectory of the point estimates for the total biomass ratio ($B/B_{MSY}$) and fishing mortality ratio ($F/F_{MSY}$) for each year 1950–2022.

**Table 2.** Black marlin: JABBA Indian Ocean assessment Kobe II Strategy Matrix. Probability (percentage) of violating the MSY-based target reference points for nine constant catch projections relative to the average catch level of 2020 – 2022 (17,710 t) * ± 20%, ± 40%,± 60%) projected for 3 and 10 years

| **Reference point and projection timeframe** | **Alternative catch projections (relative to the average catch level of 2020–2022 of 17,710 t) and probability (%) of violating MSY-based target reference points (Btarg = $B_{MSY}$; Ftarg = $F_{MSY}$)** | | | | | | |
|---|---|---|---|---|---|---|---|
| | **40%** (7,084 t) | **60%** (10,626 t) | **80%** (14,168 t) | **100%** (17,710 t) | **120%** (21,252 t) | **140%** (24,794 t) | **160%** (28,336 t) |
| $B_{2025} < B_{MSY}$ | 23 | 31 | 40 | 49 | 57 | 64 | 70 |
| $F_{2025} > F_{MSY}$ | 6 | 23 | 45 | 63 | 76 | 84 | 89 |
| $B_{2032} < B_{MSY}$ | 8 | 25 | 48 | 67 | 80 | 88 | 92 |
| $F_{2032} > F_{MSY}$ | 4 | 21 | 49 | 71 | 84 | 91 | 95 |

**Table 3.** Black marlin: Probability (percentage) of achieving the KOBE green quadrat from 2023-2032 for a range of constant catch projections (JABBA).

| Catch (t)\| Year | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---|---|---|---|---|---|---|---|---|---|---|
| 7,084 (40%) | 65 | 72 | 77 | 81 | 85 | 87 | 89 | 90 | 91 | 92 |
| 10,626 (60%) | 63 | 66 | 68 | 70 | 71 | 72 | 73 | 74 | 74 | 75 |
| 14,168 (80%) | 55 | 54 | 53 | 53 | 52 | 52 | 51 | 50 | 50 | 50 |
| 17,710(100%) | 42 | 39 | 37 | 35 | 33 | 32 | 31 | 30 | 29 | 29 |
| 21,252 (120%) | 30 | 27 | 24 | 22 | 21 | 19 | 18 | 17 | 17 | 16 |
| 24,794 (140%) | 22 | 19 | 16 | 14 | 13 | 12 | 11 | 10 | 9 | 9 |
| 28,336 (160%) | 16 | 13 | 11 | 9 | 8 | 7 | 7 | 6 | 6 | 5 |