

# IOTC-2015-PRIOTC02-CM01

### STATUS OF LIVING MARINE RESOURCES

PREPARED BY: IOTC SECRETARIAT, 8 JANUARY 2015

**REVIEW AREA:** Conservation and management

**GENERAL CRITERION:** Status of living marine resources

### **DETAILED CRITERIA:**

- 1) Status of fish stocks under the purview of the IOTC in relation to maximum sustainable yield or other relevant biological standards.
- 2) Trends in the status of those stocks.
- 3) Status of species that belong to the same ecosystems as, or are associated with or dependent upon, the IOTC species (hereinafter "non-target species").
- 4) Trends in the status of non-target species.

#### SUPPORTING INFORMATION

The stock status summary for 15 of the 16 tuna and tuna-like species under the IOTC mandate (Annex B of the IOTC Agreement), as well as 7 key shark species impacted by IOTC fisheries are provided in <u>Table 1</u>. Southern bluefin tuna is not detailed as management responsibility was formally transferred from IOTC to CCSBT (see: <u>www.ccsbt.org</u>). <u>Table 1</u> details the current status determination, as well as the trends in status of those stocks.

The complete set of IOTC Executive Summaries (stock status advice documents) adopted by the Scientific Committee at its 17<sup>th</sup> Session, held from 8–12 December 2014, are provided in support of this 'Criterion', which includes the IOTC species, 7 key shark species, marine turtles and seabirds, including Kobe plots of historical trends in stock status, as follows:

- 1 Status of the Indian Ocean albacore (ALB: *Thunnus alalunga*) resource
- 2 Status of the Indian Ocean bigeye tuna (BET: *Thunnus obesus*) resource
- 3 Status of the Indian Ocean skipjack tuna (SKJ: *Katsuwonus pelamis*) resource
- 4 Status of the Indian Ocean yellowfin tuna (YFT: *Thunnus albacares*) resource
- 5 Status of the Indian Ocean bullet tuna (BLT: Auxis rochei) resource
- 6 Status of the Indian Ocean frigate tuna (FRI: Auxis thazard) resource
- 7 Status of the Indian Ocean kawakawa (KAW: Euthynnus affinis) resource
- 8 Status of the Indian Ocean longtail tuna (LOT: Thunnus tonggol) resource
- 9 Status of the Indian Ocean Indo-Pacific king mackerel (GUT: Scomberomorus guttatus) resource
- 10 Status of the Indian Ocean narrow-barred Spanish mackerel (COM: Scomberomorus commerson) resource
- 11 Status of the Indian Ocean black marlin (BLM: *Makaira indica*) resource
- 12 Status of the Indian Ocean blue marlin (BUM: Makaira nigricans) resource
- 13 Status of the Indian Ocean striped marlin (MLS: *Tetrapturus audax*) resource
- 14 Status of the Indian Ocean Indo-Pacific sailfish (SFA: *Istiophorus platypterus*) resource
- 15 Status of the Indian Ocean swordfish (SWO: Xiphias gladius) resource
- 16 Status of the Indian Ocean blue shark (BSH: *Prionace glauca*)
- 17 Status of the Indian Ocean oceanic whitetip shark (OCS: Carcharhinus longimanus)
- 18 Status of the Indian Ocean scalloped hammerhead shark (SPL: *Sphyrna lewini*)
- 19 Status of the Indian Ocean shortfin make shark (SMA: *Isurus oxyrinchus*)
- 20 Status of the Indian Ocean silky shark (FAL: Carcharhinus falciformis)
- 21 Status of the Indian Ocean bigeye thresher shark (BTH: *Alopias superciliosus*)
- 22 Status of the Indian Ocean pelagic thresher shark (PTH: *Alopias pelagicus*)
- 23 Status of marine turtles in the Indian Ocean
- 24 Status of seabirds in the Indian Ocean

The IOTC Scientific Committee does not currently develop advice on any other non-target species/group, other than the 7 shark species, marine turtles and seabirds listed above.

### Stock status dashboard – IOTC website:

The IOTC Secretariat has developed a user friendly web-based interface 'Stock status dashboard' where the current status and trends in status are readily available, including the details Executive Summaries for each species/group. These are available as follows in English and French:

English: <a href="http://iotc.org/science/status-summary-species-tuna-and-tuna-species-under-iotc-mandate-well-other-species-impacted-iotc">http://iotc.org/science/status-summary-species-tuna-and-tuna-species-under-iotc-mandate-well-other-species-impacted-iotc</a>

French: http://iotc.org/fr/science/r%C3%A9sum%C3%A9-de-1%C3%A9tat-des-stocks

## Report of the 17th Session of the Scientific Committee

The complete report of the 17<sup>th</sup> Session of the IOTC Scientific Committee, held from 8–12 December 2014 is available in English and French as follows:

- English: <a href="http://iotc.org/meetings/17th-scientific-committee">http://iotc.org/meetings/17th-scientific-committee</a>
- French: http://iotc.org/fr/reunions/17e-comit%C3%A9-scientifique



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**Table 1.** Status summary for species of tuna and tuna-like species under the IOTC mandate, as well as other species impacted by IOTC fisheries. **Note**: Appendix references refer to the Report of the 17<sup>th</sup> Session of the IOTC Scientific Committee, held from 8–12 December 2014 (<a href="http://iotc.org/meetings/17th-scientific-committee">http://iotc.org/meetings/17th-scientific-committee</a>)

Stock	Indicate	ors	Prev <sup>1</sup>	2010	2011	2012	2013	2014	Advice to the Commission
Temperate and tropical tuna stocks: These are the main stocks being targeted by industrial, and to a lesser extent, artisanal fisheries throughout the Indian Ocean, both on the high seas and in the EEZ of coastal									
states.	G . 1 2012	20 207 :							
Albacore  Thunnus alalunga		38,297 t 37,525 t							Catches have increased substantially since 2007, attributed to the Indonesian and Taiwan, China longline fisheries although there is
Thunnus alalunga		47.6 (26.7–78.8) 0.31 (0.21–0.42)							substantial uncertainty remaining on the catch estimates. It is considered that recent catches are approaching MSY levels. Fishing
	SB <sub>MSY</sub> (1,000 t) (80% CI):	39.2 (25.4–50.7)	2007						mortality represented as F <sub>2012</sub> /F <sub>MSY</sub> is 0.69. Biomass is considered to be
		0.69 (0.23–1.39) 1.09 (0.34–2.20)	2007						at or very near to the SB <sub>MSY</sub> level (SB <sub>2012</sub> /SB <sub>MSY</sub> = 1.09). Considerable uncertainty remains in the assessments, indicating that a precautionary
	SB <sub>2012</sub> /SB <sub>1950</sub> (80% CI):								approach to the management of albacore should be applied by reducing
									fishing mortality or capping total catch levels to those taken in 2012 (34,000 t). Click here for full stock status summary: Appendix XII
Bigeye tuna		109,343 t							No new stock assessment was carried out in 2014, thus, stock status is
Thunnus obesus	U	105,924 t 132 (98–207)							determined on the basis of the 2013 assessment and other indicators presented in 2014. All the runs (except 2 extremes) carried out in 2013
	F <sub>MSY</sub> (range):	n.a. (n.a.–n.a.)							indicate the stock is above a biomass level that would produce MSY in
		474 (295–677) 0.42 (0.21–0.80)							the long term (i.e. $SB_{2012}/SB_{MSY} > 1$ ) and in all runs that current fishing mortality is below the MSY-based reference level (i.e. $F_{2012}/F_{MSY} < 1$ ).
		1.44 (0.87–2.22)	2008						Current spawning stock biomass was estimated to be 40% of the
	SB <sub>2012</sub> /SB <sub>0</sub> (range):	0.40 (0.27–0.54)							unfished levels. Catches in 2013 (≈109,000 t) remain lower than the estimated MSY values from the 2013 stock assessments. The average
									catch over the previous five years (2009–13; $\approx$ 106,000 t) also remains
									below the estimated MSY. Click here for full stock status summary:
GI L L L	G + 1 2012	424 500 4							Appendix XIII  The 2014 stock assessment model results did not differ substantively
Skipjack tuna		424,580 t 401.132 t							from the previous assessments. All the runs indicate the stock is above
Katsuwonus pelamis	2015.	101,1021							a biomass level that would produce MSY in the long term (i.e.
	MSY (1,000 t) (80% CI):	684 (550–849)							$SB_{2013}/SB_{MSY} > 1$ ) and that the current proxy for fishing mortality is below the MSY-based reference level (i.e. $C_{current}/C_{MSY} < 1$ ). Current
	` ,	0.65 (0.51–0.79)							spawning stock biomass was estimated to be 57% of the unfished
		875 (708–1,075) 0.62 (0.49–0.75)							levels. Catches in 2014 (≈424,000 t) remain lower than the estimated MSY values from the 2014 stock assessments. The average catch over
	,	1.59 (1.13–2.14)							the previous five years (2009–13; $\approx$ 401,000 t) also remains below the
	SB <sub>2013</sub> /SB <sub>0</sub> (80% CI):	0.58 (0.53–0.62)							estimated MSY. Click here for full stock status summary: Appendix
									XIV

Stock	Indica	tors	Prev <sup>1</sup>	2010	2011	2012	2013	2014	Advice to the Commission
Yellowfin tuna Thunnus albacares	Catch 2013: Average catch 2009–2013: MSY (1,000 t) (80% CI): FMSY (80% CI): SBMSY (1,000 t) (80% CI): Fcurr/FMSY (80% CI): SBcurr/SBMSY (80% CI): SBcurr/SBMSY (80% CI):	402,084 t 339,359 t 344 (290–453) n.a (n.a.–n.a.) 881 (784–986) 0.69 (0.59–0.90) 1.24 (0.91–1.40) 0.38 (0.28–0.38)	2008						No new stock assessment was carried out in 2014, thus, stock status is determined on the basis of the 2012 assessment and other indicators presented in 2014. Total catch has continued to increase with 400,292 t and 402,084 t landed in 2012 and 2013, respectively, well in excess of previous MSY estimates ( $\approx$ 17% above the MSY level of 344,000 t), in comparison to 327,453 t landed in 2011 and 299,713 t landed in 2010. Therefore it is difficult to know whether the stock is moving towards a state of being subject to overfishing. Click here for full stock status summary: Appendix XV
									and in the EEZ of coastal states. The marlins and sailfish are not usually and artisanal fisheries or as targets in recreational fisheries.
Swordfish (whole Indian Ocean) Xiphias gladius	Catch 2013: Average catch 2009–2013: MSY (1,000 t) (80% CI): FMSY (80% CI): SBMSY (1,000 t) (80% CI): F2013/FMSY (80% CI): SB2013/SBMSY (80% CI): SB2013/SB1950 (80% CI):	39.40 (33.20–45.60) 0.138 (0.137–0.138) 61.4 (51.5–71.4) 0.34 (0.28–0.40) 3.10 (2.44–3.75)	2007						The SS3 model, used for stock status advice indicated that MSY-based reference points were not exceeded for the Indian Ocean population as a whole (F <sub>2013</sub> /F <sub>MSY</sub> < 1; SB <sub>2013</sub> /SB <sub>MSY</sub> > 1). All other models applied to swordfish also indicated that the stock is above a biomass level that would produce MSY and current catches are below the MSY level. Spawning stock biomass in 2013 was estimated to be 58–89% of the unfished levels. Click here for full stock status summary: Appendix XVI
Swordfish (southwest Indian Ocean) Xiphias gladius	Catch 2013: Average catch 2009–2013: MSY (1,000 t) (80% CI): F <sub>MSY</sub> (80% CI): B <sub>MSY</sub> (1,000 t) (80% CI): F <sub>2013</sub> /F <sub>MSY</sub> (80% CI): B <sub>2013</sub> /B <sub>MSY</sub> (80% CI): B <sub>2013</sub> /B <sub>1950</sub> (80% CI):	7,349 t 7,265 t 9.86 (9.11–10.57) 0.63 (0.59–0.70) 12.68 (12.52–12.78) 0.89 (0.61–1.14) 0.94 (0.68–1.23)							The assessments carried out in 2014 produced substantially conflicting results (ASIA, BBDM and ASPIC). The southwest Indian Ocean region has been subject to localised depletion over the past decade and biomass remains below the level that would produce MSY (B <sub>MSY</sub> ). In 2013, 7,349 t of swordfish catches were recorded from this region, which equals 110% of the recommended maximum catch of 6,678 t agreed to by the SC in 2011. If catches are maintained at 2013 levels, the probabilities of violating target reference points in 2016 are $\approx$ 81% for F <sub>MSY</sub> and $\approx$ 40% for B <sub>MSY</sub> . Click here for full stock status summary: Appendix XVI
Black marlin Makaira indica	Catch 2013: Average catch 2009–2013: MSY (1,000 t) (80% CI): FMSY (80% CI): BMSY (1,000 t) (80% CI): F2013/FMSY (80% CI): B2013/BMSY (80% CI): B2013/B1950 (80% CI):								This is the second time that the WPB has applied a Stock Reduction Analysis technique to black marlin and further testing of how sensitive this technique is to model assumptions and available time series of catches needs to be undertaken. However, the WPB considers that the assessment is the best information currently available and as such, should be used to determine stock status, with the intention that alternative techniques be applied in 2015 to validate the results. Click here for full stock status summary: <a href="Appendix XVII">Appendix XVII</a>
Blue marlin Makaira nigricans	Catch 2013: Average catch 2009–2013: MSY (1,000 t) (80% CI): FMSY (80% CI): BMSY (1,000 t) (80% CI): F2011/FMSY (80% CI): B2011/BMSY (80% CI): B2011/B1950 (80% CI):	13,834 t 11,531 t 11.70 (8.02–12.40) 0.49 (n.a.) 23.70 (n.a.) 0.85 (0.63–1.45) 0.98 (0.57–1.18) 0.48 (n.a.)							No new assessment was undertaken in 2014. Thus, stock status is based on the previous assessment undertaken in 2013, as well as indicators available in 2014. In 2013, an ASPIC stock assessment confirmed the preliminary assessment results from 2012 that indicated the stock is currently being exploited near maximum levels and that the stock is at the optimal biomass level. Two other approaches examined in 2013 came to similar conclusions, namely a Bayesian State Space model, and a data poor stock assessment method: Stock Reduction Analysis using only catch data. Total reported landings increased substantially in 2012 to 17,252 t, well above the MSY estimate of 11,690 t. In 2013 reported

Stock	Indicators	S	Prev <sup>1</sup>	2010	2011	2012	2013	2014	Advice to the Commission
									catches declined slightly to 13,843 t, still above the MSY level. Given the sharp increase in reported catches over the last two years, that are well above the MSY level, the stock is likely to have moved to a state of being subject to overfishing. Click here for full stock status summary: Appendix XVIII
Striped marlin Tetrapturus audax	Average catch 2009–2013: 3,0 MSY (1,000 t) (80% CI): 4.4 FMSY (80% CI): 0.3 BMSY (1,000 t) (80% CI): 12 F2011/FMSY (80% CI): 1.2	28 (0.95–1.92) 416 (0.2–0.42)							No new assessment was undertaken in 2014. Thus, stock status is based on the previous assessment undertaken in 2013, as well as indicators available in 2014. In 2013 an ASPIC stock assessment confirmed the preliminary assessment results from 2012 that indicated the stock is currently subject to overfishing and that biomass is below the level which would produce MSY. Two other approaches examined in 2013 came to similar conclusions, namely a Bayesian State Space model, and a Stock Reduction Analysis using only catch data. The ASPIC model indicated that the stock has been subject to overfishing for some years, and that as a result, the stock biomass is well below the B <sub>MSY</sub> level and shows little signs of rebuilding despite the declining effort trend. In 2013 reported catches declined to 4,429 t, still above the MSY level. Click here for full stock status summary: Appendix XIX
Indo-Pacific Sailfish Istiophorus platypterus	Average catch 2009–2013: 28 MSY (1,000 t) (80% CI): 27 F <sub>MSY</sub> (80% CI): 0.2	5.2 (62.89–127.73) 19 (0.66–1.72) 12 (0.88–1.37)							Data poor methods for stock assessment using Stock reduction analysis (SRA) techniques indicate that the stock is not overfished and close to or exceeding maximum sustainable yield levels. However, as this is the first time that the WPB used such a method on Indo-Pacific sailfish, further testing of how sensitive this technique is to model assumptions and available time series of catches needs to be undertaken before the WPB uses it to determine stock status. Click here for full stock status summary: Appendix XX
	erel: These six species have becor	me as important or more							skipjack tuna and yellowfin tuna) to most IOTC coastal states with a urtisanal fisheries. They are almost always caught within the EEZs of
	y, catches were often reported as a		•			•			• • •
Bullet tuna Auxis rochei	Catch 2013: 11 Average catch 2009–2013: 10 MSY (1,000 t) (80% CI): un FMSY (80% CI): un BMSY (1,000 t) (80% CI): un F2012/FMSY (80% CI): un B2012/BMSY (80% CI): un	1,724 t							No quantitative stock assessment is currently available for bullet tuna in the Indian Ocean, and due to a lack of fishery data for several gears, only preliminary stock status indicators can be used. Aspects of the fisheries for bullet tuna combined with the lack of data on which to base a more formal assessment, are a cause for considerable concern Stock status in relation to the Commission's BMSY and FMSY target reference points remains uncertain, indicating that a precautionary approach to the management of bullet tuna should be applied. Click here for full stock status summary: Appendix XXI
Frigate tuna Auxis thazard	Average catch 2009–2013: 91  MSY (1,000 t) (80% CI): un  FMSY (80% CI): un  BMSY (1,000 t) (80% CI): un  F2012/FMSY (80% CI): un  B2012/BMSY (80% CI): un	8,974 t 1,974 t 1,known 1,known 1,known 1,known 1,known 1,known							No quantitative stock assessment is currently available for frigate tuna in the Indian Ocean, and due to a lack of fishery data for several gears, only preliminary stock status indicators can be used. Aspects of the fisheries for frigate tuna combined with the lack of data on which to base a more formal assessment are a cause for considerable concern. Stock status in relation to the Commission's B <sub>MSY</sub> and F <sub>MSY</sub> target reference points remains uncertain, indicating that a precautionary approach to the management of frigate tuna should be applied. Click here for full stock status summary: Appendix XXII

Stock	Indica	tors	Prev <sup>1</sup>	2010	2011	2012	2013	2014	Advice to the Commission
Kawakawa Euthynnus affinis	Catch 2013: Average catch 2009–2013: MSY (1,000 t) (80% CI): FMSY (80% CI): BMSY (1,000 t) (80% CI): F2012/FMSY (80% CI): B2012/BMSY (80% CI): B2012/B0 (80% CI):	168,954 t 150,387 t 144 (113–167) 0.51 (n.a.) 217 (168–152) 0.97 (0.62–1.61) 1.13 (0.64–1.4) 0.57 (0.32–0.7)							Analysis using a Stock Reduction Analysis approach for a second year indicates that the stock is near optimal levels of FMSY, and stock biomass is near the level that would produce MSY (BMSY). Due to the quality of the data being used, the simplistic approach employed in 2014, combined with the rapid increase in kawakawa catch in recent years, measures need to be taken to slow the increase in catches in the IOTC area of competence. A separate analysis done on a subpopulation (north-west Indian Ocean region) in 2014 indicated that that stock may be experiencing overfishing, although spawning biomass is likely to be above the level to produce MSY. Click for a full stock status summary: Appendix XXIII
Longtail tuna Thunnus tonggol	Catch 2012: Average catch 2009–2012: MSY (1,000 t) (80% CI): F <sub>MSY</sub> (80% CI): B <sub>MSY</sub> (1,000 t) (80% CI): F <sub>2012</sub> /F <sub>MSY</sub> (80% CI): B <sub>2012</sub> /B <sub>MSY</sub> (80% CI): B <sub>2012</sub> /B <sub>0</sub> (80% CI):	160,532 t 139,971 t 120 (79–171) 0.39 (0.27–0.51) 255 (173–377) 1.23 (0.47–2.11) 1.05 (0.59–1.49) 0.53(0.30–0.75)							Stock Reduction Analysis techniques indicate that the stock is being exploited at a rate that exceeds F <sub>MSY</sub> in recent years. Whether a four quadrant stock structure of catches in the Indian Ocean or a one stock assumption is used in the analysis, the conclusions remain the same. Another analysis conducted on the northwest Indian Ocean with a Surplus Production Model (ASPIC) also indicates that the stock is subject to overfishing. More traditional methods of stock assessment need to be conducted by developing indices of abundance using catch and effort series from I.R. Iran and Indonesia. Click for a full stock status summary: Appendix XXIV
Indo-Pacific king mackerel Scomberomorus guttatus	Catch 2013: Average catch 2009–2013: MSY (1,000 t) (80% CI): FMSY (80% CI): BMSY (1,000 t) (80% CI): F2012/FMSY (80% CI): B2012/BMSY (80% CI): B2012/B0 (80% CI):	44,363 t 45,447 t unknown unknown unknown unknown unknown unknown unknown							No quantitative stock assessment is currently available for Indo-Pacific king mackerel in the Indian Ocean, and due to a lack of fishery data for several gears, only preliminary stock indicators can be used. Aspects of the fisheries for Indo-Pacific king mackerel combined with the lack of data on which to base a more formal assessment are a cause for considerable concern. Stock status in relation to the Commission's BMSY and FMSY target reference points remains uncertain, indicating that a precautionary approach to the management of Indo-Pacific king mackerel should be applied. Click for a full stock status summary: Appendix XXV
Narrow-barred Spanish mackerel Scomberomorus commerson	Catch 2013: Average catch 2009–2013: MSY (1,000 t) (80% CI): F <sub>MSY</sub> (80% CI): B <sub>MSY</sub> (1,000 t) (80% CI): F <sub>2012</sub> /F <sub>MSY</sub> (80% CI): B <sub>2012</sub> /B <sub>MSY</sub> (80% CI): B <sub>2012</sub> /B <sub>0</sub> (80% CI):	148,695 t 144,462 t 137(93–164) 0.47 (0.41–1.95) 229 (132–265) 0.92 (0.41–1.95) 1.17 (0.50–1.51) 0.59 (0.25–0.75)							Stock Reduction Analysis techniques indicate that the stock is being exploited at a rate that is near F <sub>MSY</sub> in recent years, and the stock appears to be fully exploited. Northwest Indian Ocean (Gulf of Oman Sea countries) indicate that localised depletion may be occurring from an analysis done in 2013, and overfishing is occurring in this area, though the degree of connectivity with other areas remains unknown. Stock structure issues remain to be clarified. Click for a full stock status summary: <a href="Appendix XXVI">Appendix XXVI</a>

**Sharks:** Although sharks are not part of the 16 species directly under the IOTC mandate, sharks are frequently caught in association with fisheries targeting IOTC species. Some fleets are known to actively target both sharks and IOTC species simultaneously. As such, IOTC Contracting Parties and Cooperating Non-Contracting Parties are required to report information at the same level of detail as for the 16 IOTC species. The following are the main species caught in IOTC fisheries, although the list is not exhaustive.

		-		
Blue shark Prionace glauca	Reported catch 2013: Not elsewhere included (nei) sharks <sup>2</sup> : Average reported catch 2009–2013: Not elsewhere included (nei) sharks <sup>2</sup> : MSY (range):	23,197 t 46,728 t 24,447 t 49,318 t unknown		
Oceanic whitetip shark Carcharhinus longimanus	Reported catch 2013: Not elsewhere included (nei) sharks <sup>2</sup> : Average reported catch 2009–2013: Not elsewhere included (nei) sharks <sup>2</sup> : MSY (range):	230 t 46,728 t 317 t 49,318 t unknown		
Scalloped hammerhead shark Sphyrna lewini	Reported catch 2013: Not elsewhere included (nei) sharks <sup>2</sup> : Average reported catch 2009–2013: Not elsewhere included (nei) sharks <sup>2</sup> : MSY (range):	128 t 46,728 t 91 t 49,318 t unknown		There is a paucity of information available for these species and this situation is not expected to improve in the short to medium term. There is no quantitative stock assessment and limited basic fishery indicators currently available. Therefore the stock status is highly uncertain. The available evidence indicates considerable risk to the stock status at
Shortfin mako Isurus oxyrinchus	Reported catch 2013: Not elsewhere included (nei) sharks <sup>2</sup> : Average reported catch 2009–2013: Not elsewhere included (nei) sharks <sup>2</sup> : MSY (range):	1,572 t 46,728 t 1,364 t 49,318 t unknown		current effort levels. The primary source of data that drive the assessment (total catches) is highly uncertain and should be investigated further as a priority. Click below for a full stock status summary:  O Blue sharks – Appendix XXVII
Silky shark Carcharhinus falciformis	Reported catch 2013: Not elsewhere included (nei) sharks <sup>2</sup> : Average reported catch 2009–2013: Not elsewhere included (nei) sharks <sup>2</sup> : MSY (range):	3,573 t 46,728 t 3,843 t 49,318 t unknown		<ul> <li>Oceanic whitetip sharks – <u>Appendix XXVIII</u></li> <li>Scalloped hammerhead sharks – <u>Appendix XXIX</u></li> <li>Shortfin mako sharks – <u>Appendix XXX</u></li> <li>Silky sharks – <u>Appendix XXXII</u></li> <li>Bigeye thresher sharks – <u>Appendix XXXIII</u></li> <li>Pelagic thresher sharks – <u>Appendix XXXIII</u></li> </ul>
Bigeye thresher shark Alopias superciliosus	Reported catch 2013: Not elsewhere included (nei) sharks <sup>2</sup> : Average reported catch 2009–2013: Not elsewhere included (nei) sharks <sup>2</sup> : MSY (range):	0 t 46,728 t 75 t 49,318 t unknown		
Pelagic thresher shark Alopias pelagicus	Reported catch 2013: Not elsewhere included (nei) sharks <sup>2</sup> : Average reported catch 2009–2013: Not elsewhere included (nei) sharks <sup>2</sup> : MSY (range):	0 t 46,728 t 75 t 49,318 t unknown		he IOTO Constraint subject survivors this arrains

<sup>&</sup>lt;sup>1</sup> This indicates the last year taken into account for assessments carried out before 2010; <sup>2</sup>Includes all other shark catches reported to the IOTC Secretariat, which may contain this species.

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( $F_{year}/F_{MSY} > 1$ )		
Stock not subject to overfishing (F <sub>year</sub> /F <sub>MSY</sub> ≤ 1)		
Not assessed/Uncertain		