CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA

Seventeenth meeting of the Conference of the Parties
Johannesburg (South Africa), 24 September – 5 October 2016

COMMUNICATION FROM THE MALDIVES REGARDING THE FAO EXPERT PANEL OUTCOMES

This document has been submitted by the Maldives, in relation to amendment proposal CoP 17 Prop. 42 on *inclusion of* Carcharhinus falciformis *in Appendix II*[*].

[*] *The geographical designations employed in this document do not imply the expression of any opinion whatsoever on the part of the CITES Secretariat (or the United Nations Environment Programme) concerning the legal status of any country, territory, or area, or concerning the delimitation of its frontiers or boundaries. The responsibility for the contents of the document rests exclusively with its author.*

بسم الله الرحمن الرحيم

Ministry of Environment and Energy
Male', Republic of Maldives.

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މާލެ، ދިވެހިރާއްޖެ.

1 September 2016

No: 438-ECAS/PRIV/2016/1051

John E. Scanlon
CITES Secretary-General
International Environment House
11 Chemin des Anémones
CH-1219 Châtelaine, Geneva
Switzerland

Dear Mr. Scanlon,

The Government of the Maldives has always been a strong advocate for the protection of renewable marine resources worldwide. Our pole and line tuna fishery is one of the most sustainably operated fisheries in the world, and we have acted to fully protect turtles, whales, and sharks among other species within our exclusive economic zone.

The opportunity to expand to strengthen global conservation efforts for silky sharks across the globe and submit a proposal to list these critical pelagic species on Appendix II of CITES is not a role that the Maldives has taken lightly. Therefore, we were disappointed to see the results of the FAO panel that was released earlier this month.

We recognize that the FAO Panel is an important process for CITES fisheries related proposals. However, given the Panel's apparent failure to correctly apply the CITES listing criteria, the Government of the Maldives must call their recent analysis of the silky shark proposal into question.

Of concern is not only to our Government but also to our fellow 48 CITES members who also are committed to this proposal and their disbelief on Panels observation of clear evidence of significant declines of silky sharks in their geographic range. The FAO guidance and terms of reference for the Panel indicate that declines of 70% or more from historical baseline would meet the criteria for a CITES Appendix II listing. This year's Panel only considered declines over 2 generations or 30 years without any notification to CITES member countries. Such an unprecedented shift from interpretations of the criteria has led to the Panel conclusion that silky sharks do not meet the listing criteria and undue scrutiny of our proposal by our fellow CITES parties. This is a separate issue from that of listing criteria interpretation, and is of even greater concern to us.

The declines in global population of these species are so evident that CITES itself, confirming the analysis of the IUCN, recommended that these species fully meet the listing criteria and should be adopted under Appendix II next month. The Maldives, in conjunction with the Government of Sri Lanka, has consulted an external fisheries expert to review our proposals along with the analysis of the FAO panel, and have produced the attached report for silky sharks.

Green Building, Handhuvaree Hingun,
Maafannu, Male', 20392, Republic of Maldives.
+(960) 301 8300
+(960) 301 8301
www.environment.gov.mv

ގްރީން ބިލްޑިންގ، ހަނދުވަރީ ހިނގުން،
މާފަންނު، މާލެ، 20392، ދިވެހިރާއްޖެ.
secretariat@environment.gov.mv
www.twitter.com/ENVgovMV
www.facebook.com/environment.gov.mv

It is the opinion of the Maldives that the panel did not diligently applied CITES Criteria CoP14 Inf.64, or indeed the criteria interpretation laid down in the Panel's terms of reference, and therefore we would like to submit the attached report as an information document for all CITES Parties along with this letter, highlighting our concerns.

Sincerely,

Thorlq Ibrahim
Minister

MINISTRY OF ENVIRONMENT AND ENERGY
REPUBLIC OF MALDIVES

LED SAVES

Green Building, Handhuvaree Hingun,
Maafannu, Male', 20392, Republic of Maldives.
+(960) 301 8300
+(960) 301 8301
www.environment.gov.mv

ގްރީން ބިލްޑިން، ހަންދުވަރެ ހިންގުން،
ދާރަނ ބ، ދ، 20392، ދިވެހިރާއްޖެ.
secretariat@environment.gov.mv
www.twitter.com/ENVgovMV
www.facebook.com/environment.gov.mv

VISIT MALDIVES YEAR 2016

Review of FAO Expert Advisory Panel Assessment Report: COP17 Proposal 43

Species: Silky shark, *Carcharhinus falciformis*.

Proposal: To include silky shark, *Carcharhinus falciformis* in Appendix II in accordance with Article II paragraph 2(a) of the CITES Convention.

Assessment Summary	**Comments on Panel text**
Silky shark are wide-ranging, highly migratory species and globally distributed. The Panel considered this a low productivity species and determined that available information on the status of silky shark did not meet the Appendix II listing criteria. The only data series that demonstrated a decline matching the listing criteria, was for the southern Eastern Pacific Ocean stock, but only if the most recent two years of data were not included in the assessment. Considering the importance of this dataset to the global population of silky shark, and taking into account all available valid information, the Panel considered that a CITES Appendix II listing would be inconsistent with the proportionate risk to the species as a whole. If a CITES Appendix II listing was adopted and implemented effectively, this could act as a complementary measure for regulations implemented by Regional Fisheries Management Organisations. However, the Panel noted that where a States' abilities to complete CITES provisions was limited then trade might cease, or continue without adequate CITES documentation.	The Panel determined that available information on the status of silky shark did not meet the Appendix II listing criteria because they did not use the guidelines and apply the criteria correctly. The majority of datasets, when combined, do demonstrate declines that meet the listing criteria. See below.
Scientific assessment in accordance with CITES biological listing criteria	
Population distribution and productivity	
Silky shark, *Carcharhinus falciformis* (Müller & Henle 1839), is an oceanic and coastal species with circumtropical distribution found along continental shelves and slopes from the surface to 500 m of depth. Silky shark are often associated with seamounts, and juveniles with floating objects. They are found in the following FAO Areas; 21, 31, 34, 37, 41, 47, 51, 57, 61, 71, 77, 81, 87 (see http://www.fao.org/fishery/area/search/en).	
Tagging studies have shown silky shark move between open ocean and coastal systems and between northern and southern regions (Galván-Tirado *et al*., 2013). The maximum distance travelled based on tagging information was 1,339 km (Bonfil, 2008). In the Northwest Atlantic, silky shark were found to have left the exclusive economic zone of the United States, moved into and out of the Gulf of Mexico, and moved into the Caribbean Sea, with a maximum distance of 449 km travelled (Kohler *et al*., 1998). In the Eastern Pacific Ocean, tagged *C. falciformis* crossed the EEZs of six countries and went into international waters (Kohin *et al*., 2006).	
As overall population parameters and indices were not available, the Panel considered four main areas in the review: i) Atlantic Ocean, ii) Indian Ocean, iii) Eastern Pacific and iv) Central Western Pacific, based on the availability of life history and indices.	

Generally, there is good information about general biological parameters. After reviewing the available parameter estimates for the species, the Panel concluded that the species generally meets the low productivity criteria (Table 1). Some biological parameters, e.g. longevity are more consistent with a medium productivity species, however, the Panel considered that the longevity estimates could be underestimated because of uncertainty in aging methods for sharks in general and also because the estimates of maximum age of the exploited populations are likely underestimates of the true longevity. Considering that the majority of the biological parameters points to low productivity values, the Panel concluded that the species has a low productivity.	
It should be noted, that because demographic parameters [are] estimated using data from a fished population, the values reported for r (continuous rate of population increase) and lambda (the finite rate of population increase) are likely to be underestimates.	The continuous rate of population increase will be an overestimate, not an underestimate, because r increases in a fished population.
Trends and application of the decline criterion	CoP14 Inf.64 was not applied.
Under the CITES criteria for commercially exploited aquatic species (Res. Conf. 9.24 Rev. CoP16), a decline to 15–20 percent of the historical baseline for a low-productivity species might justify consideration for an Appendix I listing. For listing on Appendix II, being "near" this level might justify consideration for a listing, which for a low-productivity species would be 20–30 percent of the historical level (15–20 percent + 5–10 percent precautionary measure). Some of the references in relation to population decline presented in the CITES Proposal are incomplete, outdated and/or mis-cited. The Panel updated this information with scientific information on status of silky stocks. A number of abundance indices are available from different parts of the range, but these are of varying reliability as indices for this species. Information evaluated by the Panel regarding population trends from different oceanic regions is summarised below and in Table 2.	FAO guidance (above) notes that "historical extent-of-decline" is most important, but should be considered in conjunction with "recent rate-of-decline". The Panel did not use this guidance.
Atlantic Ocean	
The Proposal reported declines of 50–91% for silky shark or a combined "coastal shark group" in the northwest Atlantic Ocean. Three studies (Cramer, 2000; Baum *et al.*, 2003; Cortes *et al.*, 2007) analyzed commercial self-reported pelagic longline logbook program for the period 1992–1997, 1992–2003 and 1992–2005. The Panel deemed Cortes *et al.*, (2007) to be the most appropriate study to consider, as it is the most recent data analysis and has the longest time series. Moreover, the study by Baum *et al.*, (2003) analyzed silky shark as part of an "aggregate coastal shark group" rather than by species and the Panel believed that one or two species could overly influence the time series and not	The 50% decline reported by Cortes et al (2007) occurred over less than one generation (1992-2005). The Panel did not consider earlier declines in 1950-1990, or declines since 2005, to estimate the total decline from baseline. Had they done so, they would have found that the Appendix II criteria were met.

be reflective of silky shark abundance. Cortes *et al*. (2007) reported a 50% decline in silky shark abundance over 13 years.	
Analysis of data collected by on-board observers also from the same fishery found a 46% decline from 1992–2005 (Cortes *et al*., 2007). Baum and Blanchard (2010) also analyzed observer data from 1992– 2005 and reported a 76% decline in the population trend over the time period. However, again silky shark data were considered as an "aggregate coastal shark group" rather than by species and the Panel believed that the series was not reflective of silky shark abundance. Data from the US shark bottom longline fishery was also analyzed by the Panel using methodology described by Carlson *et al.* (2012) and the Panel found no significant trend in abundance of silky sharks from 1994–2015 (Figure 2). Applying the CITES criterion to these data for a species with low productivity indicates the recent extents of decline did not conform to the Appendix II decline criterion (70–80% over 2 generations).	Baum & Blanchard (2010) aggregated several large *Carcharhinus* spp because of high rates of misidentification by observers. >50% of the 'aggregate coastal shark group 1' analysed was silky shark. Silky was the third most abundant shark (after Blue and Mako) recorded by US pelagic longline fishery observers (Baum & Blanchard 2010, Table 1); the series was likely reflective of trends in the most abundant species. It is unfortunate that the Panel was unable to analyse the most recent data from the pelagic longline fishery, which might have been more informative.
A study comparing abundance of silky shark in the 1950s from fishery independent surveys in the Gulf of Mexico with abundance in the 1990s from pelagic longline observer data reported a 91.2% decline in abundance (Baum and Myers 2004). The methods and results of Baum and Myers (2004) were critiqued by Burgess *et al*. (2005), who agreed that the abundance of large pelagic sharks had declined but presented arguments that the population declines were probably less severe than indicated by that study. Of particular relevance, Burgess *et al*. (2005) noted that the change from steel to monofilament leaders between the 1950s and 1990s could have reduced the catchability of all large sharks. In responding to the critique, Baum *et al*. (2005) agreed that the change in catchability resulting from a change in the material used in leaders needed further study. Driggers *et al*. (2011) conducted a study on the effects of different leader materials on the catch-per-unit-effort (CPUE) of pelagic sharks. Comparing the estimate of silky shark CPUE on wire leaders (5.34 ±16.54) in Driggers *et al*. (2011) with the estimate of Baum and Myers (2004) for the historic period (1.71 ±3.49) indicates an increase in abundance not a decrease. However, silky shark average size did decline from 102 kg in the 1950s to 23 kg in the study by Driggers *et al*. (2011).	The panel dismissed the only long-term analysis available, even though Burgess et al. (2005a&b) stated "*Our main disagreement with the use of* [pelagic logbook] *data was their application to coastal sharks*" and "*the results for oceanic shark species … may be more credible than those for coastal species*". Silky sharks are oceanic sharks. Driggers et al. (2011) confirmed that the change from wire to monofilament leaders was at least in part responsible for the magnitude of the estimated decline of some shark species but, in contrast, found that the catchability of silky shark increased on monofilament. Although Driggers et al. observed higher catch rates on wire leaders, compared with surveys in the 1950s, the number of sets in the later study was very small and "the higher CPUE of silky sharks could be related to aggregation behavior frequently exhibited by this species".
	South Atlantic: Barreto et al. (2016) identify a 61% decline for 1979-1997 and a 98% decline in standardized

	CPUE from 1998-2005, then an increase (very low confidence levels).
Indian Ocean	
The Panel considered and discussed the estimated stock decline reported in the Proposal (Anderson and Juaharee, 2009). The Panel agreed that the information presented in that work is based on anecdotal information with a limited sample size and that represents only a small area of the Indian Ocean and a specific fishery. The Panel also noted that the information provided in the interviews was mostly qualitative, and that only on some cases quantitative estimates were provided. For those reasons, the Panel agreed that the information provided for the Indian Ocean should not be used as evidence of the suggested declines, and should not be extrapolated for the entire Indian Ocean region. The Panel also noted that the Indian Ocean is the region with the least data on reliable catch and effort statistics for pelagic sharks.	Acknowledging poor catch and effort statistics in the Indian Ocean, the proponent presented the Panel with a surrogate for catch effort, using FishStat data for Order Scombroidei to encompass year-round effort by all fleets catching silky sharks. These data indicated a 83% decline in relative catch rates in just over one generation, from 1990s to 2014. The Panel did not include this contribution in their report. See Figure 4 in Annex 1.
Eastern Pacific	
The Panel considered several references pertaining to catch rates of silky sharks in the Eastern Pacific Ocean (EPO). The paper by Galvan-Tirado *et al.* (2013) referenced in the Proposal was noted to use genetics-based effective population size estimates over time scales which are not considered relevant to the Panel's deliberations.	Unfortunately the Panel did not use all references pertaining to catch rates to extrapolate from short term datasets to an overall decline from historical baseline.
The Panel noted that while the Inter-American Tropical Tuna Commission (IATTC) Secretariat staff has suspended their efforts on a stock assessment for this species, it is continuing to update and monitor silky shark catch rate trends in the EPO purse seine fishery. These catch rate trends were presented in Minami *et al.* (2007) which showed a decline of 60–80% for the eastern Pacific Ocean during the period 1994–2004. The most recent updated analysis for this data series is provided in Lennert-Cody *et al.* (2016) which contains data for 1994–2015 under the assumption of separate stocks in the northern and southern EPO. No percentage decline was reported in that paper but the Panel calculated from the figures presented in the paper (using the difference between the average of the first three data points and the last three data points) that there was an 37% decline in silky shark catch rates in floating objects sets for the northern EPO stock and 65% for the southern EPO stock. In addition, the Panel noted that over the entire time series for the southern EPO stock that a decline of 77% was observed (based on the difference between the average CPUE in 1994–1996 and 2004–2013). This 77% decline for the southern stock would meet the criteria for CITES Appendix II listing, however it should be noted that the	The 60-80% decline presented in Minami et al. 2007 took place in less than a one generation period. The analyses in Lennert-Cody et al. 2016 cover slightly more than one generation period. A decline of 77% in the most recent generation, affecting an already depleted stock, implies the population meets the criteria for CITES Appendix I, even if this was followed by two years of a slight increase. Furthermore, Annex 5 to the criteria for commercially exploited aquatic species states: "a *general guideline for a marked recent rate of decline is the rate of decline that would drive a population down within approximately a 10-year period from the current population level to the historical extent of decline guideline (i.e. 5-20% of baseline for*

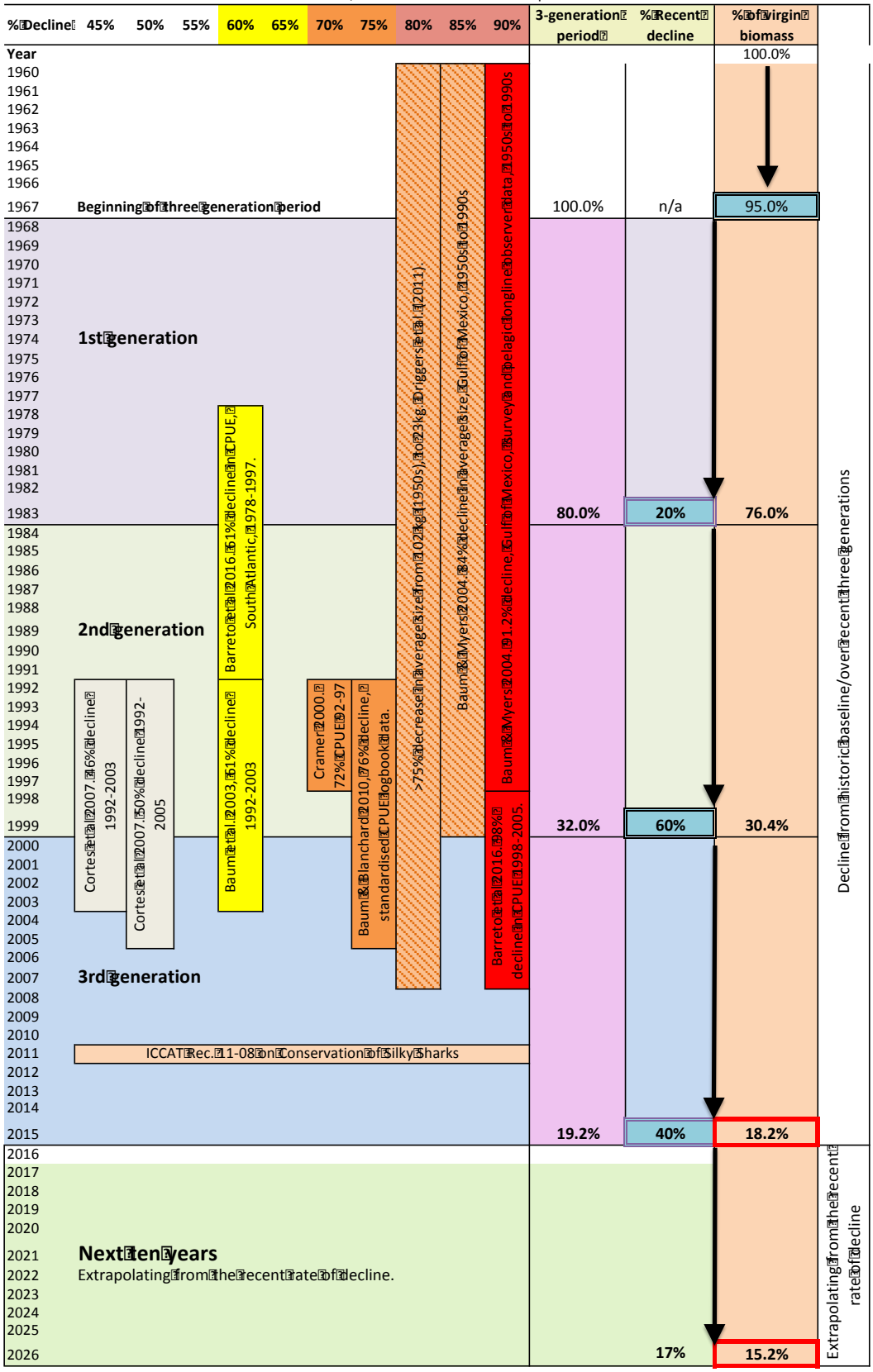
most recent CPUE values (2014-2015) show a slight increase. The Panel noted that IATTC staff does not consider the more optimistic recent trends to be strong enough to offset the urgent need for precautionary management actions, and therefore the shorter series (1994–2013) showing the larger decline (77%) was considered by the Panel to be more indicative of stock status. The Panel thus concluded that the evidence for a decline that meets the CITES Appendix II listing criteria is limited to the southern EPO stock and would apply only if the most recent data points are discounted.	*exploited fish species).*" The Panel's conclusion was reached because the Panel did not use the listing criteria.
Western Central Pacific	
The Panel considered that Rice and Harley (2013) included the relevant observer-based CPUE series for silky shark in the Western and Central Pacific Ocean available at the time they conducted their assessment (i.e. Walsh and Clarke 2011, which is an update and standardization of data contained in Walsh *et al*. (2009), Clarke *et al*., 2011a, Clarke *et al*., 2011b). In the Rice and Harley (2013) assessment, the reference case shows a decline from spawning biomass in 1995 (SB1995) to current spawning biomass (SBcurr) such that SBcurr is 0.667 of SB1995. This equates to a recent rate of decline of 33% which was mis-cited in the Proposal as a 67% decline. Furthermore, the results of the grid of 2,592 scenarios (Table 8 in Rice and Harley, 2013) show that the current median spawning biomass (median SBcurr) is 0.93 of the SB1995. This would equate to a recent rate of decline of 7%, or, if the confidence interval is taken into account, the ratio of the median SBcurr to the SB1995 would be somewhere between 0.61 and 1.67, equating to a potential recent rate of change somewhere between a 39% decline and a 67% increase.	Rice & Harley (2015) state (section 4.1.5, p.13): "*Current estimates of stock depletion are that the total biomass has been reduced to 30% of theoretical equilibrium virgin biomass…"* [See Annex 5 of Res. Conf. 9.24: a low productivity species that has declined to 20-30% from historical baseline could be considered for a listing in Appendix II.] "*…Although estimates of virgin biomass are inherently uncertain … declines are evident over just the model period, with spawning biomass having been reduced by 33%.*" The model period covers 1995-2009, slightly less than one generation.
Furthermore, an updated standardized CPUE series for the Secretariat of the Pacific Community (SPC) dataset, which was the main basis for the reference case used in the Rice and Harley (2013) assessment, <u>concluded that the data series exhibited high fluctuations throughout the study period with no overall trend</u> (Rice *et al*., 2015) (Figure 3). The Panel considered that these factors when applied to the criteria contained in Table 2 (FAO, 2002) for combining a historical extent of decline and recent rate of decline showed that the Rice and Harley (2013) results did not indicate that the WCPO silky shark stock meets the criteria for Appendix II listing.	The underlined statement opposite does not appear in Rice et al. 2015. On p. 6 they wrote: "*Silky shark and oceanic whitetip sharks have been declining under recent fishing pressure, and likely maintain their overfished status*". On p. 27: "*Standardised silky shark trends in the WCPO showed high inter-annual variability with an initial decline from 1995-2000 followed by a slight increase until 2010, followed by a steep decline*." The words "<u>with no overall trend</u>" do not appear in this source.
The Panel discussed that the only Western and Central Pacific study that showed a decline meeting the criteria for CITES	Ward and Myers (2005) is not the only study showing a decline meeting the

Appendix II listing is the Ward and Myers (2005) analysis. However, as discussed for bigeye thresher shark, the methods used in this paper are not adequately described and there may be biases when comparing the 1950s and 1990s data given the different areas and types of fishing operations sampled. The sample size appears adequate for the silky shark abundance estimates (although not for the silky shark size estimates) but the figure for the actual decline in abundance, i.e. 92%, does not appear in the paper itself (only in the Appendix) and was mis-cited in the Proposal. The Panel concluded that although this study's estimated decline meets the CITES Appendix II listing criterion there are substantial questions about its methods that result in a relatively low level of credibility being attached to its results.	criteria (see comments above and Figure 2 in Annex 1). Ward and Myers' estimate of decline clearly meets the criteria. The Panel's criticisms of the thresher shark data analysis by thse authors appeared to focus upon the small sample sizes and hence large confidence limits for the thresher data. However, there were large sample sizes and good confidence limits for the silky shark analyses. Furthermore, the 2012 FAO Panel gave Ward and Myers (2005) one of the highest credibility scores (4-5) for their analysis of the long term decline in the oceanic whitetip shark, which had similarly large sample numbers and good confidence limits. See Figure 5.
Modifying factors and risk	
The Panel considered whether there were any biological characteristics of silky sharks that would modify their probability of being depleted to the point where they would meet the criteria for listing. The low productivity of the species is considered in a previous section. That the species is circumglobal and wide-ranging is probably a positive modifying factor. Silky sharks, particularly juveniles, tend to aggregate around fish aggregating devices (FAD), where they may be entangled in the FAD (Filmalter, 2013) or caught as bycatch in fisheries where their discard survival is low (less than 20%; Poisson *et al.*, 2014, Hutchinson *et al*., 2015).	
Summary of evaluation and assessment of biological listing criteria	
No global population estimates of silky shark are available; however the population is unlikely to be small. The species is wide-ranging and globally distributed so it does not meet the criteria for a restricted distribution. The Panel considered the productivity for the species as low, and so considered declines of 70% or more over 2 generations (about 30 years) would meet the criteria for listing. Of the indices considered, most did not meet this decline criterion. The only series that demonstrated a decline that matched the criteria was for the southern EPO stock taken in the purse seine fishery, but only when the final two years of data were not considered. Therefore, the Panel concluded that there is evidence supporting a decline in only one fishery from one region. As mentioned above, two other studies that showed a	**Incorrect application of the criteria.** The listing criteria consider a recent-rate-of-decline to be over three, not two generations, but extent-of-decline from historical baseline is more important. The latter commenced in the 1950s–1960s. According to the CITES criteria and FAO guidance, declines of 70% or more from historical baseline might meet the criteria for listing. The extent-of-decline from baseline should also be considered in conjunction with the recent-rate-of-decline (over three

decline that met the criterion involved comparing catch rates from different gears in different periods, and so were not considered reliable. In conclusion, the Panel considers that a global CITES Appendix II listing would be inconsistent with the proportionate risk to the species as a whole, because most of the silky shark population does not meet the CITES Appendix II listing criteria.	generations: about 45 years for silkies). The criteria are also met if the recent rate of decline would drive a population down within approximately a ten year period from the current population to 20% or less of historical baseline. When the criteria are applied correctly, trend data from several regions and all oceans indicate a qualifying decline in silky shark stocks. See text above and Figures 1–3 below.

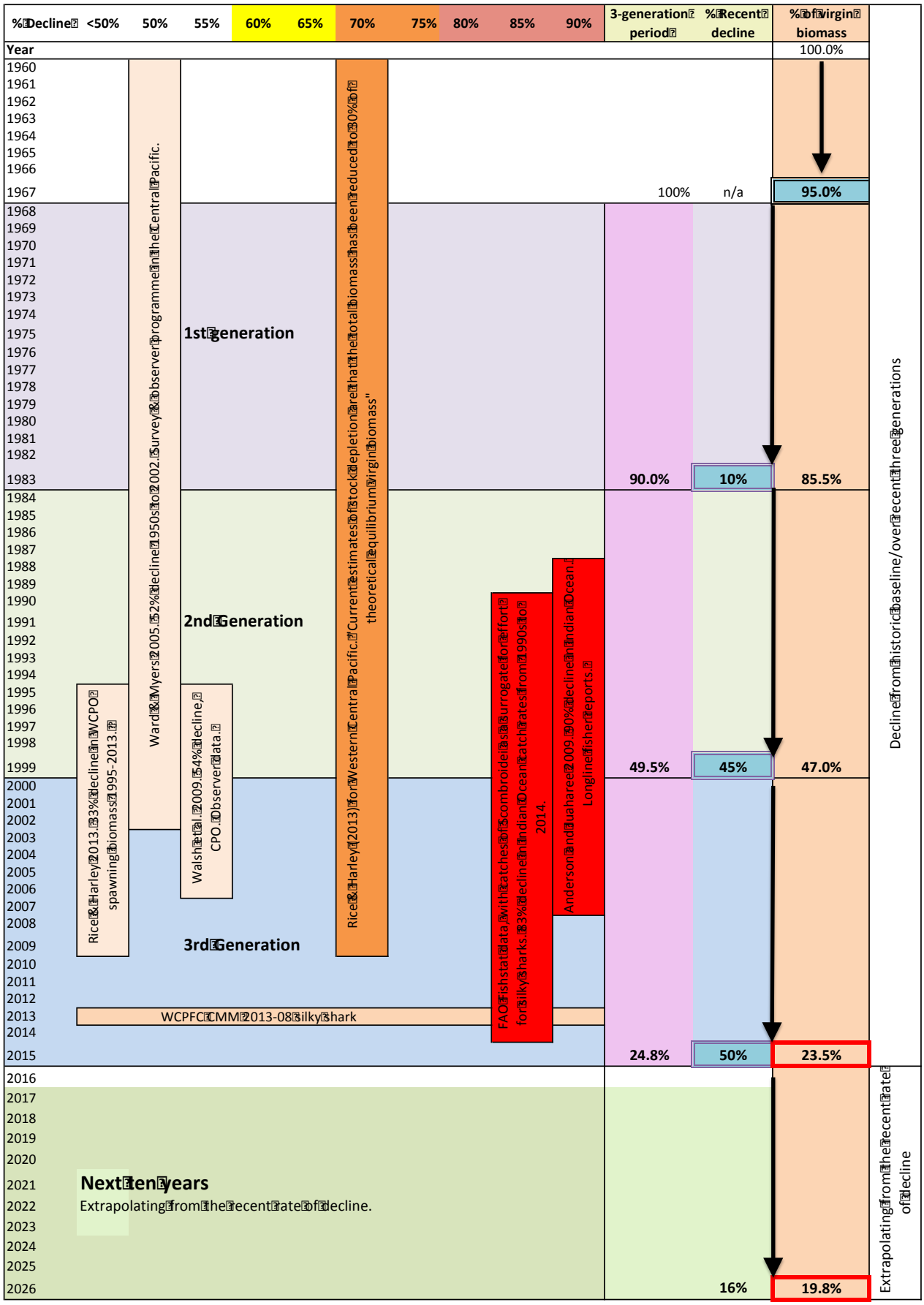
Annex 1, Silky shark, *Carcharhinus falciformis*.

Figure 1. Silky shark decline trends in the context of the CITES listing criteria, Atlantic Ocean



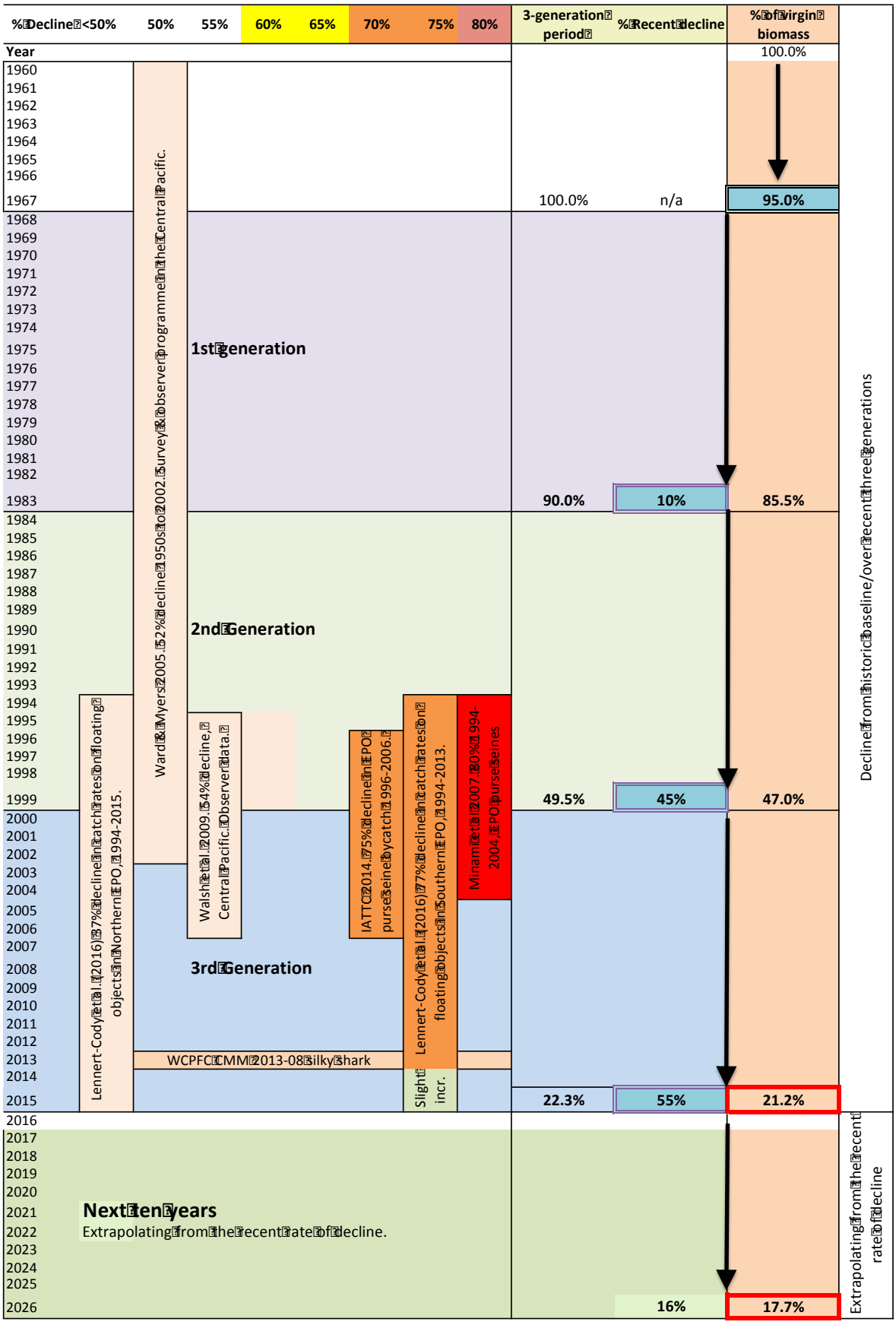
If the figure in the upper red-bordered cell is 20-30% or less of historical baseline, or in the lower cell is 20% or less of historical baseline, stocks meet the criteria for consideration for Appendix II.

Figure 2. Silky shark decline trends in the context of the CITES listing criteria, Indo-West Pacific



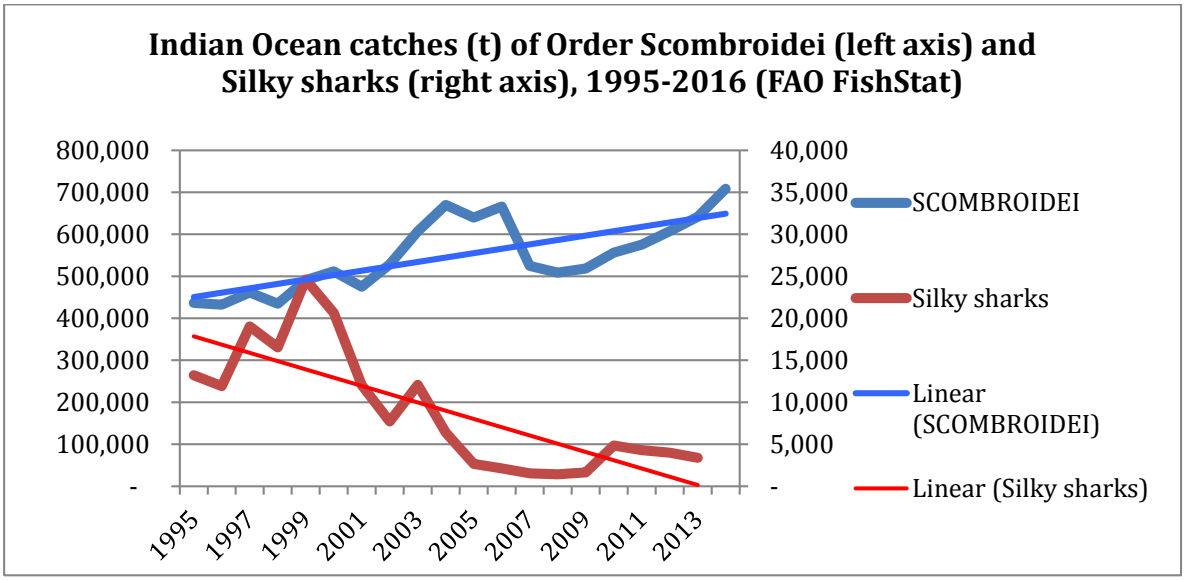
If the figure in the upper red-bordered cell is 20-30% or less of historical baseline, or in the lower cell is 20% or less of historical baseline, stocks meet the criteria for consideration for Appendix II.

Figure 3. Silky shark decline trends, Central and Eastern Pacific Oceans



If the figure in the upper red-bordered cell is 20-30% or less of historical baseline, or in the lower cell is 20% or less of historical baseline, stocks meet the criteria for consideration for Appendix II.

Figure 4. Scombroidei catches as a surrogate for silky shark fishing effort, Indian Ocean.



Silky sharks, as a proportion of scombroidei catches in the Indian Ocean (which are used as an indicator of catch effort), have declined from a mean of 3.75% in the last five years of the 1990s, to less than 0.7% in the five years 2010-2014. That is a greater than 83% decline in 20 years. This is in accord with the declines from other sources presented in the proposal for the Indian Ocean.

Figure 5. Change in indices of biomass (open circles) and abundance (solid circles) between 1950s and 1990s. (Source: Ward and Myers 2005.)