Inclusion of Silky Shark *Carcharhinus falciformis* in Appendix II

Proponents: Bahamas, Bangladesh, Benin, Brazil, Burkina Faso, the Comoros, the Dominican Republic, Egypt, the European Union, Fiji, Gabon, Ghana, Guinea, Guinea-Bissau, Maldives, Mauritania, Palau, Panama, Samoa, Senegal, Sri Lanka and Ukraine

Summary: The Silky Shark *Carcharhinus falciformis* has a global distribution in oceanic and coastal tropical waters. It occurs in territorial waters of over 110 range States and in international waters.

Silky Sharks are highly migratory. They are often associated with seamounts; juveniles often congregate around floating objects. They can be long lived, believed normally up to 20 years[1] but sometimes longer, exhibit slow growth, late maturity (seven to 15 years for females), and production of few young (four to 18 pups[2] after a nine to 12 month gestation, with at least one resting year between litters). Their productivity is generally assessed as low. Overall population size is unknown and nearly all estimates of changes in population size are derived from fisheries data. Interpretation of such data is difficult, as landings are rarely reported at individual species level, there is a general lack of information on sizes, weights and numbers of individuals caught, and changes in management and reporting make analyses of time series data, particularly those covering long periods, challenging. Where declines are observed these are ascribed to fisheries-induced mortality.

The Silky Shark is taken in very large numbers mainly as incidental catch from longline tuna fisheries but also in purse seine fisheries and in some targeted shark fisheries. There are not known to be any major unexploited populations.

Catch and landings of Silky Shark are believed to be underreported. According to FAO data, Iran, Sri Lanka, Taiwan (Province of China), Ecuador and Costa Rica have been the main harvesters of Silky Sharks in recent years with total catch reported by those at around 7500t in 2010 declining to just under 5000t in 2014.

Silky Sharks may be used for meat, particularly in Oman and Taiwan (POC), and to a lesser extent for skin, liver oil, cartilage and teeth. The principal part in trade is the fin, in demand in East Asia, particularly China. An assessment based on 2000 data estimated that at that time a minimum of 500,000 to 1.5 million Silky Sharks were used annually for their fins; this being an estimated 5% or so of shark fins in trade at that time[3]. An assessment in 2014 using different methods found the species to be the second most important (by weight) in the world's largest shark fin market in Hong Kong (Special Administrative Region), accounting for ca. 5% of the total weight in the sample; absolute amounts in trade were not assessed[4].

Numerous declines in catches and in stocks, some widespread, have been reported. In the western and central Pacific, according to one estimate made in 2013, stocks had declined to 30% of theoretical equilibrium unexploited biomass; exploitation at that time was estimated at 4.5 times greater than a sustainable level. Recent analysis of Catch per Unit Effort (CPUE) data for the region found high fluctuations from which it was not possible to determine a trend[5]. Analysis of the most recent available information from the Eastern Pacific indicates a decline in CPUE of 77% in the southern stock based on comparison of 1994 to 1996 data with that for 2004 to 2013; data for 2014 to 2015 showed a slight increase in CPUE. Data for the northern stock indicated an overall 37% decline in catch rates in floating object sets for the period 1994 to 2015[5].

Data from the Indian Ocean are sparse. The reported annual catch in Sri Lanka declined from an average of ca. 20,000t in 1997 to 2000, to below 5000t from 2005 onwards, and ca. 3500t in 2012 to 2014. Changes in fishing effort are not reported. Fishers in the Maldives report declines of 50 to 90% in landings of the species over the past 20 years.

In the North Atlantic, one study in 2007 found a 50% decline in CPUE in longline fisheries between 1986 and 2005; the same study reported a 46% decline between 1992 and 2005 in longline fisheries based on observer data. Analysis of catches in the Gulf of Mexico from the 1950s to the 2000s shows a decrease in average size of Silky Sharks landed from ca. 100kg to 23kg. Declines in mean size and increasing proportion of juveniles have also been reported in Costa Rica and the southeast USA.

Total fishery-induced shark mortality caught in Indian Ocean purse seines was ca. 80% in 2011 to 2012, with about half of live discards from purse seines suffering delayed mortality. Pelagic longline fisheries off the

southeast coast of the USA reported 26% of Silky Sharks caught were released alive (with 44% discarded dead and 30% retained), although post release survival is not known.

Silky Sharks are protected under national legislation in over 10 countries and shark finning bans are implemented by 21 countries, the European Union (EU), and nine Regional Fisheries Management Organizations (RFMOs), which could help reduce Silky Shark mortality, if they cause a larger proportion of the catch to be released alive. Silky Sharks are listed in Annex I, Highly Migratory Species, of the UN Convention on the Law of the Sea. In 2014, the Convention on the Conservation of Migratory Species (CMS) listed the Silky Shark on Appendix II and in 2016, it was added to the Migratory Shark Memorandum of Understanding.

Fisheries management for this species on the high seas falls under the remit of the tuna RFMOs. The International Commission for the Conservation of Atlantic Tuna (ICCAT) and the Western and Central Pacific Fisheries Commission (WCPFC) prohibit retaining on board, trans-shipping, or landing any part or whole carcass of Silky Shark in the fisheries covered by these Conventions. However, there are concerns that there is little or no compliance monitoring of these measures in place. The Indian Ocean Tuna Commission (IOTC) recognises the depleting stock status of Silky Sharks in the Indian Ocean, however it has not adopted a management measure to date.

The species was classified by IUCN as Near Threatened in 2009.

In the shark fin trade, Silky Sharks are labelled as Wu Yang. A 2006 study found that 80% of samples labelled Wu Yang came from Silky Sharks, the remainder were from a variety of other species, including some that could not be identified[6].

Analysis: The Silky Shark is a low productivity species with a global distribution in coastal and oceanic water. It is widely caught, chiefly as incidental take in longline tuna fisheries. Retention of catch is chiefly to supply the trade in shark fins, particularly in East Asia. There is evidence of declines, some marked, in much of the range. Such declines are attributed to overharvest. Information is sparse for the Indian Ocean, although there are localised reports of declines in catches here. Longline tuna fisheries are widespread in the Indian Ocean and there is no reason to believe that these do not have a similar impact on the Silky Shark population here as observed elsewhere in its range. There are not known to be any major unexploited populations. It would appear therefore that the Silky Shark meets the criteria for inclusion in Appendix II in Annex 2 a of *Res. Conf. 9.24 (Rev. CoP16),* in that regulation of harvest for trade is required to ensure that the species is not reducing the population to a level at which it becomes threatened.

Reviewers: V. Mundy, O. Sosa-Nishizaki, S. Clarke, A. Harry and G. Sant.

References:

Information not referenced in the Summary section is from the Supporting Statement.

[1] Clarke, S. (2016) *In litt*. to IUCN/TRAFFIC Analyses Team, Cambridge, UK.

[2] Clarke, S., Coelho, R., Francis, M., Kai, M., Kohin, S., Liu, K.M., Simpfendorfer, C., Tovar-Avila, J., Rigby, C. & Smart, J. (2015). Report of the Pacific Shark Life History Expert Panel Workshop 28-30 April 2015: https://www.wcpfc.int/node/21738. Viewed on 30th June 2016.

[3] Clarke, S. C., McAllister, M.K., Milner-Gulland, E.J., Kirkwood, G.P., Michielsens, C. G. J., Agnew, D.J., Pikitch, E.K., Nakano, H. & Shivji, M.S. (2006) Global estimates of shark catches using trade records from commercial markets. *Ecology letters* 9: 1115-1126.

[4] Fields, A. T., Fisher, G. A., Shea, S. K. H., Zhang, H., Abercrombie, D. L., Feldheim, K. A., Babcock, E. A., Chapman, D. D. (Year unknown). Species composition of the global shark fin trade. Master's thesis.

[5] Sant, G. (2016) *In litt*. to IUCN/TRAFFIC Analyses Team, Cambridge, UK.

[6] Clarke, S. C., Magnussen, J.E., Abercrombie, D.L., McAllister, M.K. & Shivji, M.S. (2006) Identification of shark species composition and proportion in the Hong Kong shark fin market based on molecular genetics and trade records. *Conservation Biology* 20: 201-211.