Inclusion of all species of Thresher Sharks in the genus *Alopias* in Appendix II

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

Summary: Species in the genus *Alopias,* known as Thresher Sharks, are migratory sharks occurring extremely widely in tropical and temperate oceanic and coastal seas. They are characterised by very long upper lobes of their caudal (tail) fins. There are three species: the Bigeye Thresher *Alopias superciliosus,* Common Thresher *A. vulpinus* and Pelagic Thresher *A. pelagicus.* They occur in surface temperatures of 16 to 25°C, but have been tracked as deep as 723m where temperatures are around 5°C[1]. They have overlapping distributions. Common Threshers are recorded circumglobally and have a noted tolerance for cold waters; highest concentrations tend to occur in coastal temperate waters. The Bigeye Thresher is also circumglobal but is generally found at low latitudes and, in the Pacific at least, in pelagic rather than onshore areas. The Pelagic Thresher is the least known of the three species. It occurs widely in the Indo-Pacific but is not known in the Atlantic[4].

The **Bigeye Thresher** reaches a maximum length of ca. 4.6m. Age at maturity is estimated at eight to 15 years for females and seven to 13 years for males. Lifespan is estimated at 20 to 21 years. Litters are small (two). Gestation is estimated at 12 months[2]. The species has extremely low productivity. The **Common Thresher** is the largest species, reaching nearly six metres in total length (including the tail). Historical and recent unconfirmed records indicate even greater total length. A recent study indicates longevity may be greater than previously thought, reaching at least 38 years[3]. Average age at maturity is estimated at five years. Litter sizes are typically small (two to seven) and may vary geographically[3]. Gestation is around nine months. The **Pelagic Thresher** may reach nearly four metres in length. Maximum reported age is 29 years. Maturity is reached at 2.6-2.9m in length; litter size is two[4]. The species is reported to have lower productivity than the Common Thresher.[8]

Overall population size of any of the species 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. Bigeye and Common Thresher have recently been the subject of a detailed review undertaken by the US National Marine Fisheries Service (US NMFS) of the National Oceanic and Atmospheric Service[3]. This contains information and analysis that in many cases supersedes information, particularly on estimated declines, that is included in the Supporting Statement of the proposal. Much of the information in this analysis is drawn from the US NMFS review.

Thresher sharks are taken as incidental and target species in many coastal and oceanic pelagic fisheries where they occur. They are primarily caught in longline fisheries, but are also caught with anchored bottom and surface gill nets, and accidently caught in bottom trawls and fish traps. Directed fisheries and retention of incidental catch are driven by demand for meat (in the case of Common and Pelagic Threshers) and fins. Meat is generally consumed locally (although any catch from international waters would be considered trade, as introduction from the sea, under CITES) while fins enter international trade, being chiefly destined for East Asia, particularly China. Bigeye Thresher meat is reported not to be widely eaten[3].

Thresher shark catches in general are considered underreported globally[3]. FAO catch data indicate harvest of 183,000t of threshers between 1999 and 2014. Total reported catches increased greatly from 3400mt in 2004 to ca. 12,000mt to 2005 (most likely due to changes in reporting practices[5]), and peaked in 2011 at ca. 22,000mt decreasing marginally to ca. 19,000mt in 2014. Indonesia, Ecuador, Sri Lanka and the USA have reported the highest level of catch. Almost all (ca. 85%) catch data are reported as *Alopias* spp although some have been reported at the species level: ca. 3000mt as Bigeye Thresher, ca. 6000mt as Common Threshers and ca. 20,000mt as Pelagic Threshers, this last all reported by Ecuador for the Southeast Pacific[6].

The majority of reported catch has been in the Pacific (68%) followed by the Indian Ocean (29%); reported catches in the Atlantic, Mediterranean and Black Sea are negligible in comparison.

Information for the **Indian Ocean** is patchy. Data from the Indian Ocean Tuna Commission (IOTC) database record an increase in catch in **Common Thresher** in the late 1990s, reaching a peak of just under 1000mt in 1999 and then declining. Reported catches of **Bigeye Thresher** have increased recently from negligible levels to ca. 200mt in 2002. Most catch is reported in thresher shark complex; this has risen from ca. 1000mt in 1990 to ca. 5000mt in 2012[3]. Catch is believed to be very underreported in the region, and it is not possible to derive reliable Catch Per Unit Effort (CPUE) estimates from it. One 2013 study estimated that actual thresher catch in the **Indian Ocean** might be of the order of 25,000mt per annum[7].

In the northern part of the **Eastern Pacific** most information relates to **Common Threshers**. The stock of this species along the western coast of North America is believed to have undergone a marked decline beginning in the late 1970s as a result of fishing mortality. Management measures have led to an improvement in the status of this stock, which has recovered to levels near those estimated for the early 1970s[3].

In the southern part of the **Eastern Pacific**, reported catch from Ecuador is of **Pelagic Threshers** (see above). Catch in the largest shark fishery (Peru) also appears to comprise very largely of Pelagic Threshers. Shark landings in Peru have declined by roughly 3% per year for 2000 to 2010 despite an increase in the size of the fishery but trends in catch in threshers are unclear[3]. **Bigeye Thresher** are known to be taken as incidental catch in purse-seine and longline fisheries in the **Eastern Pacific** but generally comprise a small proportion of overall shark catch. There is no information on CPUE trends for the species in this fishery[3].

In the **Western and Central Pacific** there is generally a paucity of species-specific information, although the **Bigeye Thresher** is believed to be the predominant thresher species in offshore areas here. Species-specific observer information indicates that the **Bigeye Thresher** may be stable or possibly increasing in the area in which the Hawaiian longline fishery operates. A 2015 analysis of standardised CPUE in the wider **Western and Central Pacific** (which did not include data from the Hawaiian fishery) using aggregated data for all three species indicated a relatively shallow decline between 2003 and 2011 and a much steeper decline from 2011 to 2014, although information for 2014 was based on few data points[3]. **Pelagic Thresher** are caught in Taiwan POC longline fisheries. An analysis of spawner per recruit for the species in eastern Taiwanese waters for 1990-2004 suggested that the stock was slightly overexploited at that time.[8]

In the **South Atlantic** most thresher catch is of the **Bigeye Thresher**. CPUE of the species in the Uruguayan longline fishery is low, although data available only cover a short time period from which it is not possible to discern trends. In the Brazilian longline fishery, slight declines in CPUE were observed up to 2006, at which point the species disappeared from the fishery, although this is believed likely a result of the fishery moving to more temperate latitudes not favoured by the species rather than reflecting actual population changes[3].

In the **Northwest and Central Atlantic** abundance trend estimates derived from standardized catch rate indices of the USA pelagic longline fishery suggest that both **Common** and **Bigeye Threshers** have likely undergone historical declines in abundance. Standardised abundance indices derived from observer data indicate that populations of both these species may have stabilised since 1990[3].

In the **Mediterranean**, **Bigeye Thresher** are considered scarce. Very severe declines in stocks of **Common Thresher** here (perhaps as much as 99%) have been documented, ascribed to fishing mortality[3].

The proportion of threshers landed live globally is not known. One study in the Pacific Islands Countries and Territories in the Western and Central Pacific found that roughly half of landed **Bigeye Threshers** landed were dead or judged unlikely to survive after release.

The quantity of thresher shark fins identified in Hong Kong (Special Administrative Region) fin markets in the early 2000s equated to between 350,000 and 3.9 million individual thresher sharks, or a biomass of 12,000 to 85,000mt being killed and traded per year. This comprised roughly 2.3% of the estimated global shark fin trade. Much of this trade goes through Hong Kong (SAR), where thresher shark fins are traded as “wu gu” ; the majority of fins in this category are from threshers although some mixing with Longfin Mako *Isurus paucus* has been documented[9].

In a 2014 study, threshers made up a very small proportion (0.1%) of shark fin samples analysed[10]. Although there has been a reported decline in shark fin trade and consumption generally in recent years[11] debate remains regarding the causes, which may include increased regulation of catches, declining stocks and catch per unit effort or falling consumer demand.

All three species of Thresher Shark were classified in the IUCN Red List as Vulnerable (2009). Regional assessments for the Mediterranean for the Bigeye Thresher and Common Thresher classified them as Endangered in 2016.

The proponents indicate that the proposal concerns the inclusion in Appendix II of Bigeye Thresher Shark as satisfying the criteria in Annex 2a of Resolution Conf. 9.24 (Rev. CoP16); and the inclusion of all other species of thresher sharks as satisfying the criteria in Annex 2b of the Resolution.

Analysis: The three Thresher Sharks in the genus *Alopias* are widespread oceanic species that are harvested in large numbers, particularly as incidental catch in longline fisheries. Their fins enter the international fin trade. There are no overall population estimates for any of the species. Much fisheries information is recorded only to genus level, making determination of species-specific trends particularly problematic. Where population declines have been identified, these are invariably ascribed to fishing pressure.

The **Bigeye Thresher** has extremely low productivity. There are indications of historic declines in the Northwest Atlantic, where populations may have stabilised at a low level. Reported catch rates in the South Atlantic are low. In the West and Central Pacific, where the species occurs widely, there are indications from 2003 onward of decline in threshers in general, which may be accelerating; however, information from one extensive fishery (the Hawaiian longline fishery) indicated stability of the Bigeye Thresher population in the region covered by the fishery. Reported catch of threshers in the Indian Ocean has increased and it is believed that unreported catch (of all threshers) may be many times that of reported catch but there are no stock assessments or analyses of changes in CPUE.

The **Common Thresher** has low productivity. There are indications of extremely marked declines in the Mediterranean that are believed to be of this species, and of historic declines in the Northwest Atlantic, where populations may have stabilised at a low level. In the Northeast Pacific, Common Threshers underwent a decline in the 1980s and 1990s but populations appear to have recovered here because of improved management.

The **Pelagic Thresher** has very low productivity. It is known to be taken in large numbers in the Eastern Pacific and to be harvested in the Indian Ocean and West and Central Pacific but there is very little species-specific information on stocks or changes in CPUE.

Given known intensity of fishing pressure in much of the range of all three species and their low productivity (particularly the Bigeye Thresher) it is likely fisheries in a number of areas are unsustainable. In others, thresher stocks may be relatively stable, but in at least some of these populations are very likely to be at significantly lower than historic levels. Overall it is unclear for any of the species whether this level of decline would satisfy the criteria for inclusion in Appendix II in Annex 2 a *Res. Conf. 9.24 (Rev. CoP16*).

If any of the species were listed in Appendix II, the others in the genus would meet the criteria in Annex 2 b (lookalike criteria).

Reviewers: S. Clarke, G. Sant, T. Curtis and R. Jabado.

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