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

Twenty-fourth meeting of the Animals Committee
Geneva, (Switzerland), 20-24 April 2009

Conservation and management of sharks and stingrays

ACTIVITIES CONCERNING SHARK SPECIES OF CONCERN (DECISION 14.107)

1. This document has been submitted by the United States of America*. Annex 2 to this document is provided herewith in English only.

Background

2. In Resolution Conf. 12.6 on Conservation and management of sharks, the Animals Committee is directed to examine information provided by range States in shark assessment reports and other available relevant documents, with a view to identifying key species and examining these for consideration and possible listing under CITES. The Animals Committee made species-specific recommendations at the 13th and 14th meetings of the Conference of the Parties for improving the conservation status of sharks and the regulation of international trade in these species. Decision 14.107 states that the Animals Committee shall continue activities specified under Resolution Conf. 12.6, including refinement of the list of shark species of concern, in collaboration with FAO, taking account of those referenced in Annex 3 to document CoP14 Doc. 59.1, and shall report on these activities at the 15th meeting of the Conference of the Parties. At the 23rd Animals Committee, a working group was established with the mandate to examine information in document AC23 Doc.15.2 and other available relevant documents, with a view to identifying key species and examining these for consideration and possible listing under CITES. While some progress was made at the meeting (AC23 WG6 Doc.1), the United States was requested to head an intersessional group on the implementation of Decision 14.107 and to prepare a paper for discussion at AC24, which will include progress on previous recommendations and prioritize future actions for species of concern.

Results of the Intersessional Working Group

3. To refine the list of shark species of concern, the United States prepared a document for discussion by the working group based on a document (AC23 Inf. 6) it submitted to AC23. This draft document was circulated to the group. Comments were received from Australia, European Commission, Canada, Mexico and Alternative Member-Singapore. The non-governmental organizations Species Management Specialists and IUCN SSC Shark Specialist Group also provided comments. Some of these comments were received late and the group was not able to reach consensus on potential recommendations for future actions. As a result, the draft discussion document and the comments

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* *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.*

received are attached here as Annexes. The Chairman hopes that this document and the associated comments can form the basis for further work at the present meeting.

REPORT OF THE SHARK INTERSESSIONAL GROUP ON THE IMPLEMENTATION OF DECISION 14.107
(document prepared by the Chair of the working group)

Background

In Resolution Conf. 12.6 on Conservation and management of sharks, the Animals Committee is directed to examine information provided by range States in shark assessment reports and other available relevant documents, with a view to identifying key species and examining these for consideration and possible listing under CITES. The Animals Committee made species-specific recommendations at the 13th and 14th meetings of the Conference of the Parties for improving the conservation status of sharks and the regulation of international trade in these species. Decision 14.107 states that the Animals Committee shall continue activities specified under Resolution Conf. 12.6, including refinement of the list of shark species of concern, in collaboration with FAO, taking account of those referenced in Annex 3 to document CoP14 Doc. 59.1, and shall report on these activities at the 15th meeting of the Conference of the Parties. At the 23rd Animals Committee, a working group was established with the mandate to examine information in document AC23 Doc.15.2 and other available relevant documents, with a view to identifying key species and examining these for consideration and possible listing under CITES. While some progress was made at the meeting (AC23 WG6 Doc.1), the United States was requested to head an intersessional group on the implementation of Decision 14.107 and to prepare a paper for discussion at AC24, which will include progress on previous recommendations and prioritize future actions for species of concern. **Requiem sharks**

1. Hammerheads, *Sphyrna* sp.

Recommendation: Prioritize as a species of concern

Justification: Hammerhead sharks, primarily great, *Sphyrna mokarran*, scalloped, *Sphyrna lewini*, and smooth, *Sphyrna zygaena*, are caught in a variety of fisheries including artisanal and small-scale commercial fisheries, bottom longlines as well as offshore pelagic longlines. Hammerheads are generally not a target species but suffer high bycatch mortality. Catches of Sphyrnidae have been reported in the FAO statistics but only the scalloped hammerhead and the smooth hammerhead are reported as individual species (Maguire et al 2006). Hammerheads are highly valued among Hong Kong fin traders and are one of the most valuable fin types in the market (Abercrombie et al. 2005). According to Clarke et al. (2004, 2006), hammerheads are the second most abundant species in the international trade in fins.

Hammerheads have relatively moderate productivity depending on the species (Cortés 2002). Species-specific stock assessments for hammerheads are generally lacking but some studies have reported large declines in relative abundance. A recent assessment for a hammerhead complex (i.e., *S. lewini, S. mokarran*, and *S. zygaena*) in the northwest Atlantic Ocean found about a 70% decline in abundance from 1981 (Jiao et al 2008). According to Maguire et al. (2006), the state of exploitation for most species is unknown except scalloped hammerheads, which are reported as fully- to over-exploited. The most recent IUCN red list assessments list the Sphyrnidae as Endangered globally (IUCN 2008).

There are no known species-specific conservation or management measures in place for the Sphyrnidae. They are listed on Annex I, Highly Migratory Species, of the UN Convention on the Law of the Sea, and some shark finning bans by fishing states, the European Union (EU), as well as by nine RFMOs, including the tuna commissions in the Atlantic (International Committee for the Conservation of Atlantic Tunas, ICCAT), Eastern Pacific (Inter-American Tropical Tuna Commission, IATTC), and Indian (Indian Ocean Tuna Commission, IOTC) Ocean (Camhi et al. 2008) may help reduce the harvesting of hammerhead sharks for their fins alone. In the U.S., this species is managed as a Large Coastal Shark on U.S. Highly Migratory Species Fishery Management Plan (National Marine Fisheries Service: Federal Fisheries Management Plan for Atlantic Tuna, Swordfish and Sharks).

2. Dusky shark, *Carcharhinus obscurus*

Recommendation: Undecided

Justification: The dusky shark is harvested in coastal shark fisheries in several parts of the world but is also caught as bycatch in pelagic swordfish and tuna fisheries. Catches of dusky shark have been reported to FAO by the USA from the Northwest Atlantic Ocean and South Africa, with South Africa reporting the highest catches. Juvenile dusky shark have been the primary target of a demersal gillnet fishery in southwestern Australian waters since at least the 1970s (Simpfendorfer 1999). Catches by that fishery escalated rapidly from under 100 tonnes (t) year^{-1} in the late 1970s to a peak of just under 600 t in 1988-1989 before management restrictions reduced and stabilized catches at ~300 t year^{-1} (McAuley et al. 2007). Fins are highly valued among Hong Kong fin traders and are still documented in international trade (Clarke et al. 2006).

Dusky sharks have one of the lowest intrinsic rebound potentials (Smith et al. 1998) and very low productivity when compared to other sharks (Cortés 2002). In the northwest Atlantic Ocean, Cortés et al. (2006) using multiple stock assessment models found dusky sharks have declined by at least 80% with respect to virgin population levels. However, off the southwestern Indian Ocean coast of South Africa, Dudley and Simpfendorfer (2006) found no significant declines in catch rates or mean lengths from 1978-2003 based on catches from shark nets deployed off the beaches of KwaZulu-Natal. Simpfendorfer (1999) performed an assessment of the dusky shark in southwestern Australia gillnet fishery and found that it is possible to exploit dusky shark by targeting the youngest age-classes. However, concern now exists owing to declining neonate recruitment and unquantified catch of older sharks in non-target fisheries (McAuley et al. 2007). The most recent IUCN redlist assessment lists dusky shark as vulnerable globally.

In the United States, the dusky shark has been a prohibited species (no commercial or recreational harvest) to fisheries in western North Atlantic waters since 2000. Management measures also exist in western Australia and in South Africa (e.g. recreational bag limit).

3. Thresher sharks, *Alopias* sp.

Recommendation: Undecided

Justification: Three species of thresher sharks, pelagic thresher, *Alopias pelagicus*, bigeye thresher, *Alopias superciliosus* and common thresher *Alopias vulpinus* are harvested primarily with pelagic longline and gillnet gear. Thresher fisheries are found in the northwestern Indian Ocean, western and Central Pacific, eastern North Pacific, and North Atlantic. Threshers were formerly a very important component of the Cuban longlines fishery, and more recently has been taken in considerable numbers by longliners off the northeastern USA and by gillnets vessels off southern California (USA) and the eastern Atlantic (by Spanish vessels), and by longliners off Taiwan (Province of China) (Castro et al. 1999). Overall, catches of Alopiidae that have been reported to FAO since the early-1980s have generally been less than 1,600 t and around 1,000 t since 1998 (972 t in 2004). However, it is likely that not all catches are reported (Maguire et al 2006). Thresher sharks are traded internationally for their fins and are the 7th most common species identified within the Hong Kong market (Clarke et al. 2004, 2006).

Depending on the species, productivity varies. Bigeye thresher sharks are generally regarded to have low productivities and whereas common and pelagic sharks have moderate productivity (Cortés 2008, Smith et al. 2008). Stock assessments for thresher sharks are generally lacking but some studies have reported declines in relative abundance (e.g. Baum et al. 2003) whereas others have reported slight increases (Cortés et al. 2007). Recently an Ecological Risk Assessment was conducted on thresher sharks to assess their vulnerability to pelagic longline fisheries in the Atlantic Ocean under the auspices of ICCAT (Cortés et al. 2008, Simpfendorfer et al. 2008). In both studies, bigeye thresher sharks have a high risk of susceptibility whereas common threshers were less prone. According to Maguire et al. (2006), the state of exploitation for all species of thresher sharks are reported as fully- to overexploited and IUCN red list assessments lists each species as vulnerable globally (IUCN 2008).

Species-specific conservation and management measures are very limited. In the U.S., bigeye thresher is a prohibited species in the Atlantic Ocean and common thresher is managed as a Pelagic Shark on U.S. Highly Migratory Species Fishery Management Plan. In the U.S. Pacific Ocean, thresher sharks are managed under the Western Pacific Fishery Management Council. Thresher sharks are listed on Annex I, Highly Migratory Species, of the UN Convention on the Law of the Sea. Little management exists among regional fishery management organizations. Finning bans which could help should lower mortality and reduce waste have been implemented by 19 countries and the European Union (EU), as well as by nine RFMOs, including the tuna commissions in the Atlantic (ICCAT), Eastern Pacific (IATTC), and Indian (IOTC) Ocean (Camhi et al. 2008).

4. Shortfin mako, *Isurus oxyrinchus*

Recommendation: Undecided

Justification: Shortfin makos are harvested with pelagic longline and gillnet gear. Unlike other shark species, shortfin makos are not undesirable bycatch because both their flesh and fins are valuable on the international market. Catch statistics for this species have been reported to FAO starting in 1987. The country with the largest catches was Spain. Stevens (2000) estimated that 12,500 t of mako were caught by longline fleets in the Pacific in 1994 and Babcock and Nakano (2008) determined that about 8,000 t were caught in the Atlantic Ocean in 2001. Landings have been steadily increasing since 2000 (Maguire et al. 2006). Shortfin makos were found to represent approximately 2% of the total Hong Kong fin trade market (Clarke et al. 2004).

Shortfin makos are generally regarded to have lower productivities than other pelagic sharks (Cortés 2008). Ecological Risk Assessment conducted on shortfin makos indicated they have low productivity and high levels of susceptibility to the combined pelagic longline fisheries in the Atlantic Ocean (Cortés et al. 2008, Simpfendorfer et al. 2008). No assessments are available for the Pacific or Indian Oceans but recently completed stock assessments for shortfin makos in the Atlantic Ocean were ambiguous. Some models found that current stock is above the biomass that can support maximum sustainable yield while others suggested the stock was overfished with overfishing occurring (ICCAT 2008). New biological information that increases the age of maturity and reproductive cycle and lowers the productivity supports the probability that the stock could be below the biomass that supports maximum sustainable yield. According to Maguire et al. (2006), the state of exploitation for shortfin makos is reported as moderately to over-exploited. Recent IUCN red list assessments list shortfin makos as vulnerable globally (IUCN 2008).

Some national management exists (e.g. quotas in the United States). Internationally, an agreement directs ICCAT members without population assessments to reduce fishing mortality on shortfin mako. ICCAT also requires full utilization of sharks caught and along with IATTC recommends live release of incidentally caught sharks. Finning bans have been implemented by 19 countries and the European Union (EU), as well as by nine RFMOs (Camhi et al. 2008). Shortfin mako are listed under Annex III of The Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (i.e. Barcelona Convention) and Convention on the Conservation of European Wildlife and Natural Habitats (i.e. Bern Conventions), which permit a certain level of exploitation if population levels allow (Bern) or require exploitation to be regulated (Barcelona).

5. Silky shark, *Carcharhinus falciformis*

Recommendation: Undecided

Justification: Silky sharks are commonly caught as bycatch by pelagic longline and purse seine fisheries but are also taken in fixed bottom nets and longlines. There are a few major multispecies shark fisheries that catch large numbers of silky sharks, mainly in Mexico and Sri Lanka (Bonfil 1994). It is also taken in the coastal fisheries of Taiwan and in larger numbers in the Taiwanese shark fisheries in waters of Indonesia and Papua-New Guinea (Chen et al. 1996). Bonfil (1994) estimated that some 1 million silky sharks were caught as bycatch in tuna longline fisheries in the Central and South Pacific at the beginning

of the 1990s. However, there is large uncertainty surrounding these calculations and there are no estimates of numbers discarded alive and numbers actually killed. Catch statistics for this species are reported to FAO started in 1960 with 5,000 mt and since then the trend has been positive reaching a peak of 25,400 mt in 1994 then slightly decreasing to 21,000 mt in 1996 (Maguire et al 2006). Silky shark are the third most common species in the shark international fin trade (Clarke et al. 2004).

The silky shark has a moderate intrinsic rebound potential (Smith et al. 1998) and low-moderate productivity (Cortés 2008). Species-specific stock assessments are lacking. Debate continues on the level of decline based on studies of changes in relative abundance with some reporting large declines (Baum and Myers 2003) whereas others report moderate declines (Cortés et al. 2007). An Ecological Risk Assessment found silky shark ranked 5th in their susceptibility to pelagic fisheries among 12 other Atlantic Ocean species (Cortés et al. 2008, Simpfendorfer et al. 2008). Maguire et al. (2006) reported the state of exploitation of silky shark was unknown to moderately exploited. The silky shark is considered near threatened by the IUCN Red List (IUCN 2008).

Some national management exists (e.g. US and Australia) but overall is lacking internationally. Silky sharks are listed on Annex I, Highly Migratory Species, of the UN Convention on the Law of the Sea. ICCAT requires full utilization of sharks caught and recommends live release of incidentally caught sharks. Finning bans, which should lower mortality and reduce waste have been implemented by 19 countries and the European Union (EU), as well as by nine RFMOs (Camhi et al. 2008).

6. Oceanic whitetip shark, *Carcharhinus longimanus*

Recommendation: Undecided

Justification: Oceanic whitetip sharks are one of the more common pelagic species taken as bycatch in tunas and swordfish fisheries. There are a few major small-scale fisheries primarily in the Gulf of Aden and the Pacific coast of Central America (Bonfil and Aballah 2004). Bonfil (1994) estimated about 145 t was taken annually in the North Pacific and 10.8 t were taken in the Central and South Pacific. Total catches reported to FAO were 175 and 187 t in 2003 and 2004, respectively. Fins from oceanic whitetip sharks compose at least 2% by weight of shark fins within the Hong Kong market (Clarke et al. 2004).

The oceanic whitetip shark has a moderate intrinsic rebound potential (Smith et al. 2008) and low-moderate productivity (Cortés 2008). Species-specific stock assessments are lacking but some catch rate analyses have reported large declines in abundance in the northwest Atlantic (Baum and Myers 2004) whereas other studies have reported declines not as severe (Cortés et al. 2008). The extent of declines for oceanic whitetip shark has been the subject of intense debate (Burgess et al. 2005, Baum et al. 2005). Ecological Risk and Productivity Assessments determined that oceanic whitetip sharks ranked 4th and 5th in their susceptibility to pelagic fisheries among 12 other Atlantic Ocean species (Cortés et al. 2008, Simpfendorfer et al. 2008, respectively). Maguire et al. (2006) reported the state of exploitation of oceanic whitetip shark was unknown. Oceanic whitetip sharks are considered vulnerable by the IUCN Red List (IUCN 2008).

Oceanic whitetip sharks are listed on Annex I, Highly Migratory Species, of the UN Convention on the Law of the Sea. ICCAT requires full utilization of sharks caught and recommends live release of incidentally caught sharks. Finning bans implemented by 19 countries and the European Union (EU), as well as by nine RFMOs should help reduce mortality (Camhi et al. 2008).

7. Blue shark, *Prionace glauca*

Recommendation: Remove as species of concern

Justification: The blue shark is a widespread oceanic shark usually caught in pelagic longline and driftnet fisheries. With the exception of Spain, Brazil, Italy, and France, it is not a readily consumed species, so it is mostly harvested for its fins (Bonfil 1994). Catches of blue shark have been reported to FAO since

1978. Catches have steadily increased since 2000 from 18,605 t to 36,647 t in 2004 (Maguire et al. 2006). However, official FAO statistics underestimate the true magnitude of catches as landings estimated from blue shark fin exports from the Atlantic Ocean alone exceed the reported catches from this area (Clarke et al. 2006). Blue shark comprises at least 17% of the international fin trade (Clarke et al., 2006).

Blue sharks are the most productive pelagic species and have moderate-high rebound potential (Cortés 2008, Smith et al. 2008). Several different types of models have been applied to assess the status of blue shark. Despite the large harvest of blue shark, a recently completed a stock assessment for blue sharks conducted under the auspices of ICCAT found that current stock in both the North and South Atlantic Ocean is above the biomass that can support maximum sustainable yield (ICCAT 2008). An Ecological Risk Assessment also found blue shark were least susceptibility to pelagic fisheries in the Atlantic Ocean (Cortés et al. 2008, Simpfendorfer et al. 2008). In the north Pacific, Kleiber et al. (2001), determined the stock of blue shark was near maximum sustainable yield. Maguire et al. (2006) determined the state of exploitation for blue shark was unknown but recent IUCN redlist assessment lists the status of global blue shark stocks as Near Threatened.

Internationally management regulations include ICCAT requirements of full utilization of sharks caught and along with IATTC recommends live release of incidentally caught sharks. Finning bans have been implemented by 19 countries and the European Union (EU), as well as by nine RFMOs (Camhi et al. 2008). Blue shark are listed under Annex III of The Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (i.e. Barcelona Convention) and Convention on the Conservation of European Wildlife and Natural Habitats (i.e. Bern Conventions), which permit a certain level of exploitation if population levels allow (Bern) or require exploitation to be regulated (Barcelona).

8. Sandbar shark, *Carcharhinus plumbeus*

Recommendation: Remove as species of concern

Justification: Sandbar sharks are commonly targeted in directed coastal gillnet and longline fisheries and occasionally caught as bycatch by pelagic longlines. Important sandbar fisheries are found in the western North Atlantic, eastern North Atlantic, and South China Sea. FAO catch statistics have been reported for this species, primarily from the United States with landings peaking at 89 t in 1990 and steadily declining since then due to management restrictions. Sandbar sharks are also targeted catches of the southwestern Australian gillnet fishery and demersal longline shark fishery off the northwest coast of Australia. Sandbar catches for these fisheries more than doubled between 1994-1995 and 2003-2004 to over 400 t $year^{-1}$ (McAuley 2006). Sandbar shark fins are highly valued among Hong Kong traders and are one of the more common species identified within the international shark fin trade (Clarke et al. 2004, 2006).

Sandbar sharks have low intrinsic rebound potentials (Smith et al. 1998) and low productivity when compared to other sharks (Cortés 2002). In the northwest Atlantic Ocean, stock assessments have found sandbar sharks have been depleted 64-71% from unexploited population levels (NMFS 2006). Dudley and Simpfendorfer (2006) found significant declines of sandbar shark in catches from shark nets deployed off the beaches of KwaZulu-Natal, South Africa. McAuley (2006) determined the current levels of exploitation on sandbar shark by target fisheries in western Australia are unsustainable. The most recent IUCN redlist assessment lists sandbar shark as vulnerable globally.

Strict management measures exist in the United States based on the most recent assessment. Species-specific management plans are also found in Australia. Where species management action are lacking, finning bans employed by States and RFMOs will also help reduce mortality where sandbar sharks are captured.

9. Bull shark, *Carcharhinus leucas*

Recommendation: Remove as species of concern

Justification: The bull shark is not a targeted species in most commercial fisheries but is caught incidentally in a variety of fisheries including artisanal and small-scale gillnet fisheries and bottom longlines. Species-specific landings data is rare as most landings of bull shark are likely combined as unidentified shark or requiem shark. In the United States, bull sharks make up only 2-3% of the total large coastal shark landings. Bull sharks are traded internationally for their fins identified as the 4th most common species in the Hong Kong market (Clarke et al. 2004).

Very little information exists on the population status of bull sharks. Dudley and Simpfendorfer (2006) found a significant decline in catch from 1978-2003 based on catches from shark nets deployed off the beaches of KwaZulu-Natal, South Africa. Baum et al. (2003) reported that abundance of a coastal shark species group (which likely contain bull shark) caught in pelagic longline gear in the northwest Atlantic had declined by 61% from 1992 to 2000. In contrast, results of surplus production models from Cortés et al. (2002) indicates relative CPUE declined by about 58% from 1974 to 2001, 39% from 1986 to 2001, and 19% from 1992 to 2001. Bull sharks have lower productivities compared with other sharks (Smith et al. 1998, Cortés 2002). The 2007 IUCN Red List of Threatened Species classifies bull shark as lower risk- near threatened.

Little specific management exists. They are listed on Annex I, Highly Migratory Species, of the UN Convention on the Law of the Sea, South Africa employs a recreational bag limit and in the U.S., this species is managed as a Large Coastal Shark on U.S. Highly Migratory Species Fishery Management Plan (National Marine Fisheries Service: Federal Fisheries Management Plan for Atlantic Tuna, Swordfish and Sharks).

10. Tiger shark, *Galeocerdo cuvier*

Recommendation: Remove as species of concern

Justification: Tiger sharks are not a targeted species but are caught incidentally in a variety of longline and gillnet fisheries. Species-specific landings data are rare as most landings of tiger shark are likely combined as unidentified shark or requiem shark. In the United States, tiger sharks are generally released alive from longline gear and make up less than 1% of the total large coastal shark landings. Tiger sharks comprise less than one percent of the identifiable species in the Hong Kong fin trade.

Very little information exists on the population status of tiger sharks. A significant increase in catch per unit effort from 1978-2003 was found off KwaZulu-Natal, South Africa (Dudley and Simpfendorfer 2006). Tiger sharks have moderate productivities compared with other sharks (Smith et al. 1998, Cortés 2002). The 2007 IUCN Red List of Threatened Species classifies tiger shark as lower risk- near threatened.

Tiger sharks are listed on Annex I, Highly Migratory Species, of the UN Convention on the Law of the Sea, South Africa employs a recreational bag limit and in the U.S., this species is managed as a Large Coastal Shark on U.S. Highly Migratory Species Fishery Management Plan (National Marine Fisheries Service: Federal Fisheries Management Plan for Atlantic Tuna, Swordfish and Sharks).

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Smith, S. E., D. W. Au, and C. Show. 2008. Intrinsic rates of increase in pelagic elasmobranchs. Pp. 288-297. In: Sharks of the Open Ocean-Biology, Fisheries and Conservation (eds M.D. Cahmi, E.K. Pikitch and E.A. Babcock), Blackwell Scientific.

Comments from Mexico

Also recognize the huge work you did to put together this draft of the report of the Shark Intersessional Group in relation to examining shark assessment reports and other sources of information with the view to identifying key shark species for possible listing under CITES, draft that you kindly sent us to revise and make comments last November 20, 2008. Of course I apologize for my delay in send my comments but December is a very complicate month for many of us, because is the end of our fiscal year and for that reason I'm aware that my comments can be extemporaneous but hope can be useful in something.

Revising the geographical information on catches, landings and trends of the group of shark species that you revised, I figurate that most of it came from North Atlantic and North Pacific regions and countries like USA, Australia, and South Africa, with few others too. The list of possible shark species of concern are in majority tropical shark species: hammerheads, dusky, silky, bull, and the tiger sharks, and the remaining species are more inhabitants of template waters (blue, thresher and mako sharks). Most of the tropical caracarinids sharks are undergoing an intense exploitation in several nations of Latin America as México, Colombia, Venezuela, Peru, Ecuador, including the whole region of Central America. And the information and present status of the shark species that sustain those shark fisheries are poorly known. Many factors caused this gaps or scarce of information, little fishery infrastructure development, lack or limited monitoring catch and landings systems, few funds and few interest on shark fisheries. And of course the language barrier.

In regard to the hammerheads and silky sharks, in our countries (Eastern Pacific) exist a relative good amount of historic and recent information, but most is part of grey literature (government fishery reports, BS and MS thesis from several universities, and others) but very few has been published in English journals, so this information is poorly known. I recommend that if we desire to have a more complete scenario of what is happening to this species in particular globally (hammerheads sharks and other requiem sharks have cosmopolitan tropical distribution) we need to make an effort to revise this other sources of information, that in our countries had a relevant importance.

In the case of México we have recent information on Sphyrna lewini and Carcharhinus falciformis from Mexican southern Pacific which are the two main species that sustained the large shark artisanal fishery based on the fishing port of "Puerto Madero" (State of Chiapas), located in the Gulf of Tehuantepec. This fishery produced, until recent years, an average of 3,000 t per year.

The shark fishery in the coast of Chiapas until 1980 was a very small fishery developed with landings inferior to 300 t per year. In the follow 16 years triggered for the national domestic food demand, Chiapas became in the first shark productor in the Mexican Pacific with a shark landings average per year of 3,687 t (during the period 1981-1996). In 2002 shark landings from Chiapas were the first of the total shark landings from the Mexican Pacific, with 4,692 t (25.7%). Chiapas has diverse artisanal fleets composed mainly of small boats outmotored of 10 m length, that principally use surface longlines for the capture of sharks and diverse array of teleosts species.

On basis of a week sampling survey the shark landings of the shark artisanal fleet of Puerto Madero, during the period 1996-2003, we determine that two shark species are the maion sustain of the fishery: C. falciformis and S. lewini accounted 89% of the total sharks landed and the remaining was provided by 19 shark species.

During the period 1996-2003 were sampled 22,562 individuals of C. falciformis. The size range for both sexes was 50-340 cm TL, with an mean size of 131.07 cm ± 0.0018 TL. Females presented a size interval of 50-338 cm TL with a mean size of 131.73 ± 0.0036 TL, meanwhile males a size range of 50-340 cm TL, with a mean of 130.38 cm ± 0.0035 TL. A maturity size was estimated of 177 cm TL for females and 168 cm TL for males.73.6% of females and 80% of males of C. falciformis were inmature. During the study were examined 138 gravid females of C. falciformis. The embryo offspring range was 2-7, with a mean number of 6.36 ± 0.18 embryos, and a size range 12-64 cm TL. Gravid females were caught during March, May, July, August and September.

With respect to the scalloped hammerhead shark, S. lewini, during the same period of survey were recorded the landed of 10,919 individuals. The size range for both sexes was 30-495 cm TL (mean size 81.23 ± 0.0045 cm TL). Total length interval for females was 30-495 cm TL (mean size 77.41 ± 0.0085 cm TL), meanwhile males presented a size interval of 34-330 cm TL (mean size 85.41 ± 0.0096 cm TL). The size of maturity was estimated in 169 cm TL for females and 154 cm TL in males. Most of the scallpoed hammerhead sharks caught in the coastal waters of the Gulf of Tehuantepec were inmature (91% females and 85.4% males). 56.4% of inmature S. lewini were neonates.

This information was extracted of the following study (I enclosed the PDF file):

Soriano-Velásquez, S.R., Acal-Sánchez, D.E., Castillo-Géniz, J.L., Vázquez-G´mez, N. and Ramírez-Santiago, C.E. 2006. Tiburón del Golfo de Tehuantepec, pp. 323-360, In: Sustentabilidad y Pesca Responsable en México. Arreguín-Sanchez, F., Beléndez-Moreno, L.F., Méndez Gómez-Humarán, I., Solana-Sansores, R., and Rangel-Dávalos (eds.) Instituto Nacional de la Pesca, SAGARPA, México.

Also recently was presented to the David and Lucile Packard Foundation the report of the study titled "The Status of shark and ray fishery resources in the Gulf of California: Applied research to improve management and conservation" which abstract I reproduce below:

Seasonal surveys were conducted during 1998–1999 in Baja California, Baja California Sur, Sonora, and Sinaloa to determine the extent and activities of artisanal elasmobranch fisheries in the Gulf of California. One hundred and forty–seven fishing sites, or camps, were documented, the majority of which (n = 83) were located in Baja California Sur. Among camps with adequate fisheries information, the great majority (85.7%) targeted elasmobranchs during some part of the year. Most small, demersal sharks and rays were landed in mixed species fisheries that also targeted demersal teleosts, but large sharks were usually targeted in directed drift gillnet or, to a lesser extent, surface longline fisheries. Artisanal fishermen were highly opportunistic, and temporally switched targets depending on the local productivity of teleost, invertebrate, and elasmobranch fishery resources. Major fisheries for small sharks (< 1.5 m, "cazón") were documented in Baja California during spring, in Sonora during autumn–spring, and in Sinaloa during winter and spring. Mustelid sharks (Mustelus spp.) dominated cazón landings in the northern states, whereas juvenile scalloped hammerheads (Sphyrna lewini) primarily supported the fishery in Sinaloa. Large sharks (> 1.5 m, "tiburón") were minor components of artisanal elasmobranch fisheries in Sonora and Sinaloa, but were commonly targeted during summer and early autumn in Baja California and Baja California Sur. The pelagic thresher shark (Alopias pelagicus) and silky shark (Carcharhinus falciformis) were most commonly landed in Baja California, whereas a diverse assemblage of pelagic and large coastal sharks was noted among Baja California Sur landings. Rays dominated summer landings in Baja California and Sinaloa, when elevated catch rates of the shovelnose guitarfish (Rhinobatos productus, 13.2 individuals/vessel/trip) and golden cownose ray (Rhinoptera steindachneri, 11.1 individuals/vessel/trip) primarily supported the respective fisheries. The Sonoran artisanal elasmobranch fishery was the most expansive recorded during this study, and rays (especially R. productus) dominated spring and summer landings in this state. Seasonal catch rates of small demersal sharks and rays were considerably greater in Sonora than in other surveyed states. Many tiburón populations (e.g., C. leucas, C. limbatus, C. obscurus, Galeocerdo cuvier) have likely been overfished, possibly shifting effort towards coastal populations of cazón and rays. Management recommendations, including conducting demographic analyses using available life history data, determining and protecting nursery areas, and enacting seasonal closures in areas of elasmobranch aggregation (e.g., reproduction, feeding), are proposed. Without effective, enforceable management to sustain or rebuild targeted elasmobranch populations in the Gulf of California, collapse of many fisheries is a likely outcome.

The complete cite of the study is (also include the PDF file of this report, which fortunately is in English):

Bizzarro, J.J., Smith, W.D., Hueter, R.E., Tyminski, J., Márquez-Farias, J.F., Castillo-Géniz, J.L., Cailliet, G.M., and Villavicencio-Garayzar, C.J. 2007. The Status of shark and ray fishery resources in the Gulf of California: Applied research to iprove management and conservation. A report to the David and Lucile Packard Foundation. 241 p.

With best regards

Leonardo
Dr. José Leonardo Castillo-Geniz

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Comments from Canada

REPORT OF THE SHARK INTERSESSIONAL GROUP ON THE IMPLEMENTATION OF DECISION 14.107

Note: These comments relate to the text in Annex 1.

Requiem sharks

1. Hammerheads, *Sphyrna* sp.

Comment: In Canada, this species is managed under the National Plan of Action for the Conservation and Management of Sharks. There is no directed fishery for this species in Canada and <<1 t/year is reported as landed bycatch.

2. Dusky shark, *Carcharhinus obscurus*

Comment: In Canada, this species is managed under the National Plan of Action for the Conservation and Management of Sharks, although Canadian waters are considered the fringe of this species' range. There is no directed fishery for this species in Canada and << 1 t/year is reported as landed bycatch.

3. Thresher sharks, *Alopias* sp.

Comment: *A. vulpinus* is the only species of this genus found in Canadian waters and it is managed under the National Plan of Action for the Conservation and Management of Sharks. There is no directed fishery for this species in Canada and << 1 t/year is reported as landed bycatch.

4. Shortfin mako, *Isurus oxyrinchus*

Comment: In Canada, this species is managed under the National Plan of Action for the Conservation and Management of Sharks, as well as the Canadian Atlantic Pelagic Shark Integrated Fisheries Management Plan. The directed fishery for this species in Canada has a Total Allowable Catch of 250 tonnes per year but average landings are much less than this at 112 tonnes/year (most of which is bycatch). Although it is unlikely that Canadian exploitation rates for this species are having an appreciable impact on the global population, continued monitoring is warranted based on estimates of a significant portion of unreported catch occurring in international waters. Monitoring of shortfin mako includes periodic stock assessments, an at-sea observer program, and dockside monitoring of all landed specimens.

5. Silky shark, *Carcharhinus falciformis*

Comment: This species is not found in Canadian waters.

6. Oceanic whitetip shark, *Carcharhinus longimanus*

Comment: In Canada, this species is managed under the National Plan of Action for the Conservation and Management of Sharks. There is no directed fishery for this species in Canada and there are no recorded landings of this species as bycatch.

7. Blue shark, *Prionace glauca*

Comment: In Canada, this species is managed under the National Plan of Action for the Conservation and Management of Sharks, as well as the Canadian Atlantic Pelagic Shark Integrated Fisheries Management Plan. The Total Allowable Catch for this species in Canada is 250 tonnes per year of which 125 tonnes is allocated to a directed recreational fishery. However, on average only ~30t are landed annually as the recreational fishery is mandatory catch-and-release except for 4-6 authorised derbies each year. Similarly other Parties, Canadian tuna and swordfish fisheries may catch and discard substantial quantities of blue shark each year (up to approximately 1000 tonnes annually in recent years).

8. Sandbar shark, *Carcharhinus plumbeus*

Comment: This species is not found in Canadian waters.

9. Bull shark, *Carcharhinus leucas*

Comment: This species is not found in Canadian waters.

10. Tiger shark, *Galeocerdo cuvier*

Comment: In Canada, this species is managed under the National Plan of Action for the Conservation and Management of Sharks. There is no directed fishery for this species in Canada and there are no recorded landings of this species as bycatch.

Comments from Australia

Australian Government response to draft 'Report of the Shark Intersessional Group on the Implementation of Decision 14.107.'

Overarching comments:

1. ***Need for stronger links between justification and recommendations*** - In some instances, the link between the recommendation and the text justifying the recommendation are unclear. It appears that the group have weighted certain information differently, but the reasoning behind this is not clear. For example, hammerhead is recommended as a species of concern, while other species for which similar trends have been presented have no recommendation. These inconsistencies make it difficult to judge the robustness of the recommendations for some species. As noted in subsequent informal emails between the group, it may be appropriate to establish a rating system to allow data and decisions to be presented consistently.

2. ***Tendency to present species information as a single population*** - The paper does not detail how the group is intending to address the issue that not all populations of this species are necessarily exposed to the same level of risk and potentially under threat. There was a general view that the justifications are currently presented as if each species were a single population, with trends in one place extrapolated to another. The Australian Government are of the view that there are likely to be separate populations for some of the species, and there may be instances where the condition of Australian populations differs from populations elsewhere.

3. ***Bias on northern hemisphere examples*** - Species management information in the paper is provided from a northern hemisphere perspective, and does not capture the management of some of the species in southern waters. More specific information on Australian populations should be available shortly as the report of the Environmental Risk Assessment process that has been undertaken in Commonwealth-managed fisheries becomes publicly available. The Australian Government has been able to provide our views regarding species of concern ratings that draws on internal advice regarding the Australian ERA process. When this information becomes publicly available, it will be provided to the working group for incorporation into the paper as appropriate. For the moment, the overarching views are provided below under specific species headings.

4. ***Inconsistent interpretation of terminology*** - Care needs to be taken with the interpretation and terminology used to describe the results of the Ecological Risk Assessments (ERA) (Cortes et al 2008 and Simpfendorfer et al 2008).

   For example, the second paragraph in the justification for thresher sharks states "an Ecological Risk Assessment was conducted on thresher sharks to assess their vulnerability to pelagic longline fisheries (Cortes et al 2008 and Simpfendorfer et al 2008). In both studies, bigeye thresher sharks have a high risk of susceptibility whereas common threshers were less prone".

   - The term "vulnerability" has a range of interpretations – the risk assessment looked at the risk of over-exploitation. Conversely, the term "susceptibility" has a specific meaning within the risk assessments - it is not clear if the text in the justification is referring to the "susceptibility" or the overall risk score.

- The assessment by Simpfendorfer et al. was not just an "Ecological Risk Assessment". The results from Simpfendorfer et al. were based on integrating the Ecological Risk Assessment results, with a proxy for B_{MSY} and the IUCN Red List status. The report seems to switch between referring to the integrated risk, and the risk based on the Ecological Risk Assessment.

5. ***Clarifying the purpose of the paper*** - There may be value in explicitly stating the objectives of the 'Species of Concern' paper at the start of the paper. This may assist in resolving some of the issues raised above. Further, it needs to be clearly articulated that this is not a list of species that will be immediately nominated to CITES for listing.

Specific comments for individual species:

1. Hammerheads

   On the basis of advice from the Australian Fisheries Management Authority (AFMA), of all the hammerhead species it is considered that the smooth hammerhead (*Sphyrna zygaena*) to be of greatest concern.

   Given the major declines of scalloped hammerheads (*Sphyrna lewini)* that have been suggested in the Atlantic, and the prevalence of hammerhead species in the international shark fin trade, the Australian Government currently agrees with their prioritisation as species of concern.

   In addition to the USA and international management measures presented, examples of management measures in some Australian fisheries include: shark landing restrictions such as prohibitions on the landing of livers alone; trip limits on the number of sharks that can be retained; and no Commonwealth fishery allows finning (removal of fins at sea and discarding of carcass).

   As a separate point, it is noted that Hammerheads are included under the title of Requiem sharks. This will need to be amended in the draft report.

2. Dusky shark

   Australian scientific advice supports the recommendation of the dusky shark as a species of concern. It is worth noting that there are significant problems with species identification of dusky shark as they are often confused with bronze whalers. If this species were considered for listing on the appendices of CITES in the longer term, the bronze whaler (*C. brachyurus*) may also have to be considered as a look-alike species.

3. Thresher sharks

   Australian scientific advice received supports prioritising thresher sharks as a species of concern, with the justification that bigeye thresher was considered as highest risk of pelagic Atlantic sharks, and the common thresher as next highest risk as noted in Simpfendorfer et al. 2008.

4. Shortfin mako
   Australian scientific advice concurs with the views of those presented in the draft report. The shortfin mako should be listed as a species of concern given that it came out as highest risk pelagic Atlantic sharks in Simpfendorfer et al. 2008.

5. Silky shark

   Australian scientific advice recommends that, given silky sharks were identified as high risk in Simpfendorfer et al. 2008, they should be prioritised as a species of concern. Management measures in place in some Australian fisheries include shark bycatch trip limits, prohibition on finning and landing of livers only, prohibitions on the use of wire traces and general shark landing restrictions.

6. Oceanic whitetip shark

   Consistent with the advice for silky sharks, the Australian scientific advice recommends that oceanic whitetips are listed as species of concern given that they were rated as high risk in Simpfendorfer et al. 2008.

The management measures in place for sharks in some Australian fisheries include bycatch trip limits, prohibition on finning and landing of livers only, prohibitions on the use of wire traces and general shark landing restrictions.

7. Blue shark
Australian scientific advice recommends that blue sharks should remain as a species of concern. The basis for this position is a lack of confidence in the ICCAT stock assessments, and the existence of numerous conflicting analyses, some of which suggest declines in blue shark populations whilst others suggest increases.

The management measures in place in some Australian fisheries include shark bycatch trip limits, prohibitions on finning and landing of livers only, prohibitions on the use of wire traces and general shark landing restrictions.

8. Sandbar shark
The information provided in the report seems to indicate that on a global scale populations of this species are over-exploited and in decline. Given the apparent value of fins for this species in Hong Kong and reports that suggest that this is a common species identified within the international shark fin trade, there appears to be a market for the fins of sandbar sharks that will continue to drive targeted fishing for this species. Further, Australian scientific advice has also indicated that this species has a very limited biological capacity to withstand fishing mortality, and requires very strong management arrangements. Due to the species' low intrinsic rebound potential and low productivity and the potential for market forces to drive an on-going harvest of the species, the Australian Government supports Sandbar shark remaining a species of concern.

It was noted that there was no reference in the current draft of the report, regarding the recent USA assessment of the Large Coastal Shark complex that would further support retaining this species as a species of concern.

A minor edit in this section, the McAuley paper should be 2007, not 2006.

9. Bull shark
Although there is conflicting information about the global status of this species, much of the information provided indicates some populations are in decline and are being over-exploited. The information in the justification suggests that this species has low intrinsic rebound potential, low productivity and there are indications that this species is targeted for its fins given that it is the fourth most common species identified in the Hong Kong fin market. Additional information received when consulting with Australian scientists and management agencies suggests that this species is commonly caught in apparatus deployed for shark control programs. Based on these factors, further discussion is required to determine if this species remains on the list, or is removed.

10. Tiger shark
Australian scientific advice supports the removal of tiger shark from the list of species of concern, due to the reasons noted in the draft report. Some additional background information received relating to management of this species in Australia is that it is a species commonly caught in apparatus deployed for shark control programmes in Australian waters.

Comments from the European Commission

First of all I want to thank you very much for the preparation of your document which you had circulated at the end of last year. It gives a very good short overview of the biological and management information in the Requiem Shark group which is group for which the AC working group had agreed to prioritize first of all its work.

At the same time myself and my Commission colleagues have to apologize for not responding before on the document you had prepared. One of the main reasons is that the European Commission was preparing the proposal for the EU shark action plan which has now been published just only 10 days ago. This took considerable efforts to prepare and several background reports could only been made available after official publication.

The press release on the "Communication from the Commission to the European Parliament and the Council on a European Community Action Plan for the conservation and management of the sharks" can be found at the link below. The link to the Action plan and background documents are given at the end of that page.

http://europa.eu/rapid/pressReleasesAction.do?reference=IP/09/220&format=HTML&aged=0&language=EN&guiLanguage=en

Although you had indicated already in your previous email that you would submit your draft document to the AC for further discussion (because of the deadline for submission of documents), I still would like to send you some of my short comments in the document as well as an abstract of species information which the Commission had used in the preparation of our EC shark action plan, realising it would had been more helpful if we could had sent it earlier to you.

Some minor comments are reflected in your original document (with the earlier Canadian comments): I think it would particular good to discuss in the paper (or at the AC meeting in April) the order of prioritization of the different species (see also table 1 in your document AC23 inf 6 table 1). Based on the criteria you had used to set up your table 1 at that time (trade volume, relative productivity, red list assessment) and based on your addtional scientific and management information, it seems that the 2nd, 3rd, 4th and 6th species (all vulnerable species) could also be identified as species of concern (in comparison to the hammerhead sharks which are prioritized as species of concern).

Furthermore it would be useful to attach to your document a table like table 1 of AC23 inf 6 with an overview of the species, its priorization and main criteria used. That would be helpful as a summary table.

Please see further specific species information, including EU fisheries and other fisheries where relevant, in attached document. This is information contained in the shark assessment report under the proposal for the EU shark Action Plan for the selected requiem shark species. The overall report is published on the following website. We realise that this document contains information till mid-2008, so for certain species the assesment of studies and reports (e.g. in framework of ICCAT) of last autumn had not been included (as you had done in your overview document).

http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=SEC:2009:0106:FIN:EN:PDF

I fully recognise and apologize that this contribution is fairly late now the documents have to be finalised. I would leave it up to you whether you would still include some additonal factual background information into the working group document and/or to include a summary table.

Thanks again for all your work,

Best regards,

Henk Eggink

European Commission
DG Environment - CITES team
email: henk.eggink@ec.europa.eu

REPORT OF THE SHARK INTERSESSIONAL GROUP ON THE IMPLEMENTATION OF DECISION 14.107

Note: These comments relate to the text in Annex 1.

Requiem sharks

1. Hammerheads, *Sphyrna* sp.

EU comment: Some similar/additional information about the species in attached document.

2. Dusky shark, *Carcharhinus obscurus*

EU comment:

Recommendation: Species of concern? consider species of concern listing, based on criteria in table 1 of AC23 inf 6 (relative volume in trade, relative productivity and red list assessment (being vulnerable species))

3. Thresher sharks, *Alopias* sp.

EU comment:

Recommendation: Species of concern? consider species of concern listing, based on criteria in table 1 of AC23 inf 6 (relative volume in trade, relative productivity and red list assessment (being vulnerable species))

Some similar/additional information about the species in attached document.

Under EC legislation for 2009, Community vessels fishing shall promptly release alive and unharmed bigeye thresher sharks (Alopias superciliosus) caught in association with fisheries managed by ICCAT, when brought along side for taking on board the vessel. Incidental catches and live releases are to be recorded in the logbook

4. Shortfin mako, *Isurus oxyrinchus*

EU comment:

Recommendation: species of concern? consider species of concern listing, based on criteria in table 1 of AC23 inf 6 (relative volume in trade, relative productivity and red list assessment (being vulnerable species))

In the fourth sentence of the final paragraph under this heading insert the words “Appendix II of the Convention on the Conservation of Migratory Species of Wild Animals (CMS),” after the words “Shortfin mako are listed under”.

Some similar/additional information about the species in attached document.

5. Silky shark, *Carcharhinus falciformis*

EU comment:

Recommendation: ? \

6. Oceanic whitetip shark, *Carcharhinus longimanus*

EU comment:

Recommendation: ? ? consider species of concern listing, based on criteria in table 1 of AC23 inf 6 (relative volume in trade, relative productivity and red list assessment (being vulnerable species))

7. Blue shark, *Prionace glauca*

EU comment:

Some similar/additional information about the species in attached document which includes some more information (Indian Ocean, Pacific Ocean). However, this assessment does not include the latest ICCAT (2008) assessment as you have done (although conclusions seem to be the same that for the north and south Atlantic the current biomass appears to be above the biomass at MSY).

8. Sandbar shark, *Carcharhinus plumbeus*

EU comment:

Recommendation: Remove as species of concern ? (This species is according to IUCN red list assessed as vulnerable and therefore to some extent more of concern than other species which are assessed as "near threatened")

9. Bull shark, *Carcharhinus leucas*

No comment.

10. Tiger shark, *Galeocerdo cuvier*

EU comment:

Some similar/additional information about the species in attached document.

Please add also the overview table (table 1 of Doc AC23 inf 6) which summarizes the information, including the updated information and consider the order of the species.

Additional information on selected requiem shark species from the Shark assessment report of the European Community Plan of Action (data used till mid 2008)

Hammerhead sharks (Sphyrna spp)

Status of the stocks

Pacific Ocean stocks: there are no directed fisheries for Hammerhead sharks in the Pacific Ocean; however they are caught as bycatch in longline fisheries. Hammerhead sharks are also caught as part of shark control programs introduced around the coast of Australia (QDPI, 2001).

Indian Ocean stocks: there is a lack of catch and bycatch data on Hammerheads through the Indian Ocean, with the current available data insufficient to adequately assess the effect fishing is having on the stock (IOTC, 2005). Subsequently little is known about the status of this stock and the CPUE of the stock (IOTC, 2005). The management of Hammerhead shark stocks in the Indian Ocean has been difficult due to the low level of research and monitoring activity of Hammerheads, in addition to the lack of knowledge we have about their biology and critical habitats (IOTC, 2005). This is emphasized by the level of misidentifications with regards to Hammerhead species. Appropriate steps should be introduce to allow stock assessments to be carried out in the future utilizing scientific data (IOTC, 2005).

Thresher sharks (Alopias spp.)

Common thresher *Alopias vulpinus* and bigeye thresher *A. superciliosus* Order: Lamniformes Family: Alopiidae English: Thresher shark, common thresher, fox shark, sea fox, swiveltail, and thrasher French: Renard *and* renard à gros yeux Spanish: Zorro *and* zorro ojón	

The fishery

Gear types, fishing fleets and their distribution: There is no target fisheries for thresher sharks in the NE Atlantic; although they are taken as a bycatch in longline and driftnet fisheries (e.g. Buencuerpo *et al*., 1998; Macias *et al*., 2003; Mejuto *et al*., 2001: Tudela *et al*., 2005). Both species are caught mainly in longline fisheries for tunas and swordfish, although they may also be taken in driftnet and gillnet fisheries. The fisheries data for the ICES area are scarce, and they are mostly unreliable, because it is likely that the two species (*A. vulpinus* and *A. superciliosus*) are mixed in the records.

EC directed catch trends and characteristics: The main landing countries are Portugal (106 t in 2006), Spain (59 t in 2006) and France (23 t in 2006). The majority of the Portuguese and Spanish catches are made in Area IX, whilst the French catch is in Area VIII.

Incidental catch characteristics: No data is available.

Status of the stocks

Atlantic Ocean stocks: two species of thresher sharks occur in the Northeast Atlantic Ocean the common thresher (*Alopias vulpinus*) and bigeye thresher (*A. superciliosus*). Of these, *A. vulpinus* is the dominant species in the ICES area. There is little information on the stock identity of these globally distributed sharks. In the absence of records of transatlantic migrations, assume there to be a single NE Atlantic and Mediterranean stock of *A. vulpinus*. This stock could possibly be extended south in to the CECAF area. No detailed stock assessments have been performed for thresher sharks in the North Atlantic though both the common and bigeye threshers are classified as vulnerable by the IUCN.

Indian Ocean stocks: FAO landings data on elasmobranchs for the Indian Ocean are severely limited by the lack of species-specific catch, discard and landings data from the major fleets. There is also little information on the biology of thresher sharks in the Indian Ocean and no information is available on stock structure, although three species of thresher shark, the pelagic thresher (*A. pelagicus*), common thresher (*A. vulpinus*) and bigeye thresher (*A. superciliosus*). The catch estimates for thresher sharks are highly uncertain and CPUE trends are also not available as there are no surveys specifically designed to assess shark catch rates in the Indian Ocean.

Observer programme estimates conducted in the Indian Ocean using observer data have shown that pelagic thresher sharks constitute 0.22% of all species caught on longlines by number and up to 0.76% by weight, at a catch rate of 0.056kg per 1000 hooks (MRAG, 2004)

Due to the lack of data available no quantitative stock assessment has been undertaken by the IOTC Working Party on Ecosystems and Bycatch. There is a clear paucity of information available on thresher shark species and this situation is not expected to improve in the short to medium term. There is no quantitative stock assessment or basic fishery indicators currently available for thresher sharks in the Indian Ocean therefore the stock status of each species is highly uncertain. All three thresher sharks are classified as vulnerable by the IUCN.

Pacific Ocean stocks: FAO landings data on elasmobranchs for the Pacific Ocean are severely limited by the lack of species-specific catch, discard and landings data from the major fleets.

Existing specific management measures

EC Regulation No. 1185/2003 prohibits the removal of shark fins of this species, and subsequent discarding of the body. This regulation is binding on EC vessels in all waters and non-EC vessels in Community waters.

Despite its midrange intrinsic rebound potential, the management of *A. vulpinus* is of concern, as shown by the quick decline of the USA Pacific fishery targeted on this species and which ended in the 1990 due to overfishing (Hanan *et al*., 1993; Cailliet *et al*., 1983). Liu *et al*. (1998, 2006) consider that *Alopias* spp. are particularly vulnerable to overexploitation and in need of close monitoring because of its high vulnerability resulting from its low fecundity and relatively high age of sexual maturity. Precautionary management measures could be adopted for the NE Atlantic thresher sharks, due to the fishing effort for large pelagic fishes in the region.

The two species are recorded mixed or separately; however analysis of the available data seems to indicate that they are often mixed even when recorded under specific names. Also, some discrepancies are observed when different sources of data are available (e.g. FAO, ICCAT, national data).

Blue shark (Prionace glauca)

Blue shark *Prionace glauca*

Order: Carcharhiniformes
Family: Carcharhinidae
English: Blue shark, blue dog and blue whaler
French: Peau bleue
Spanish: Tiburón azul

Overview

Although there are no large-scale directed fisheries at this species, it is a major bycatch in many fisheries for tunas and billfishes, where it can comprise up to 70% of the total catches (ICCAT, 2005). Observer data indicate that substantially more sharks are caught as bycatch than reported in catch statistics. For the entire North Atlantic, catch is estimated to exceed 100 000 t with mortality estimates between 26 000 to 37 000 t. Blue sharks are also caught in considerable numbers in recreational fisheries, including in the ICES area (Campana *et al*., 2005).

The fishery

Gear types, fishing fleets and their distribution: An examination of fishing effort in FAO Area 27 (NE Atlantic) shows that the Spanish Basque fleet is currently the predominant EC country catching around 400 t of blue shark per annum, although until 2003 Portugal caught up to 2 000 tonnes yearly. France also catches significant volumes at around 107 t in 2006. Taiwan, Japan and China also catch blue shark, although their catches are not specified to individual FAO area, only the whole Atlantic Ocean. A detailed description of the Basque fishery was presented by Diez *et al*. (2007). This ICES Working Document shows that blue shark used to be a traditional and rather low bycatch of many Basque (Spanish) fleets operating in the Bay of Biscay (ICES Divisions VIIIa, b, c, d). Since 1998 a small fleet of Basque longliners spend part of their yearly activity targeting blue sharks in the Bay of Biscay VIIIa,b,c,d (Diez *et al*, 2007). Blue sharks are caught predominantly in ICES Areas VII, VIII, IX, X and XII.

EC directed catch trends and characteristics: The 2006 EC catch of 4,162 t was mainly caught by Portugal (2 627 t), Spain (1 400 t) and France (134 t). The Portuguese catch is mainly from Area IX, whilst the Spanish catch is from IXa, VIIIa,b,c,d and X.

Incidental catch characteristics: Discards are presumed to be far higher than reported

(Campana *et al*., 2005), especially in high seas fisheries. Shark bycatch in some fisheries are finned, although the USA, Canada and EC have taken measures to stop finning. If left intact, survival rates for discarded sharks can be high, the proportion of blue sharks alive at hauling longlines is given between 80–90% and about 60% of these sharks released may survive (Campana *et al*., 2005).

Status of the stocks

Atlantic Ocean stocks: the ICCAT pelagic shark assessment working group (ICCAT, 2005) considers there to be a single stock of blue shark (*Prionace glauca*) in the North Atlantic, one in the South Atlantic and one in the Mediterranean (Heessen, 2003; Fitzmaurice *et al*., 2005, ICCAT, 2004).

ICCAT started collecting data on shark by-catches from the Atlantic tuna fleets only in 1994, and catch reporting of sharks has not been good. Estimates from a study of the Hong Kong shark fin trade (Clarke 2003) showed that blue shark catches were underreported globally. Based on this information ICCAT attempted to construct a more accurate picture of shark catch and mortality in the Atlantic tuna fleets based on ratios of shark to tuna landings from fleets reporting both to ICCAT and using these ratios to reconstruct an example catch history by major gear type.

Several CPUE series have been discussed within ICCAT for use in blue shark stock assessments and the following catch rate series were selected as being the best representative series:

- Japanese longline logbook series (applied to North and South Atlantic separately);
- USA longline logbook series (applied to North Atlantic);
- Chinese Taipei longline series (applied to South Atlantic); and
- Brazil NE and SE longline series (applied to South Atlantic; partial series).

Various different models where used for the stock assessment of Atlantic blue shark. A surplus production model was applied to the catch and CPUE data available at the 2001

ICCAT Bycatch Working Group meeting (SCRS/2001/021), implemented with the BSP (Bayesian Surplus Production) software. The model used informative Bayesian priors for historical catches (before reliable catch data of blue sharks were collected), and the biomass at the beginning of the time series. Model results implied that current levels of harvest are sustainable for blue sharks. The greatest source of uncertainty in the model results was the missing catch data early in the time series. For the North Atlantic stock of the runs that produced results these showed an average current status around 85% of K (although the trajectory was quite variable. The ICCAT Bycatch Working Group noted that there is a wide range of other sensitivity analyses including alternative catch scenarios that could be examined into the future to help define the most appropriate set of model assumptions for these data. The Group noted that the model was not able to track the decrease in CPUE in the recent years. For blue shark in the South Atlantic, six sensitivity analyses were run, and all but one converged. The runs all showed an average current status around 75% of K.

No full-scale benchmark assessment has been conducted to date due to limitations on available data for this species. ICCAT completed a preliminary stock assessment in 2004, but no management recommendations were made. Although the North Atlantic Stock appeared to be above biomass in support of MSY, the assessment remained highly conditional on the assumptions made. These assumptions included (i) estimates of historical shark catch, (ii) the relationship between catch rates and abundance, (iii) the initial state of the stock in 1971, and (iv) various life-history parameters. The authors pointed out that the data used for the assessment did not meet the requirements for proper assessment (ICCAT, 2006), and further research and better resolved data collection for this species was highly recommended. A recent study of the population trends of Atlantic pelagic predatory fishes reported that blue sharks have declined over 60% in recent decades (e.g. Baum *et al.*, 2003), though this study has attracted some controversy (see Baum *et al.*, 2005 and Burgess *et al.*, 2005a,b). Other studies on blue shark have shown smaller declines (e.g. Campana *et al.*, 2005), or significant declines in males only (Simpfendorfer *et al.*, 2002).

SCRS/2004/105 presented a detailed age-structured population dynamics model which could be used to describe the dynamics of shark populations and evaluate the effects of exploitation. Uncertainty in the understanding of shark dynamics and exploitation patterns was again incorporated using Bayesian methods. The model failed to converge when the complete CPUE series from Japanese longline for blue shark in the North Atlantic was used. However, convergence of the model was achieved when the model was run using the complete CPUE series from the USA longline fishery and the CPUE series from the Japanese longline without the CPUE values for years 1971-1973 (the first 3 points of the series). Thus, the different runs were conducted using the complete USA longline CPUE and the modified CPUE series for the Japanese longline. The model was run using two different assumptions about the weighting of the CPUE series; equal weighting (Run 1) and catch dependent weighting (Run 2). The model was also run assuming options for biannual (Run 1) or annual reproduction cycle (Run 3). The mode of the results of the runs showed the virgin mature fish biomass smaller than 700 000t but also gave considerable probability to much greater values. The probability density function (pdf) for the depletion of the population supported values for population depletion which are close to 50%. However, for all runs considered, the mode of the distribution supported values for the ratio of current stock to virgin stock size which were very close to 1 (i.e. showing no depletion).

In summary, both North and South Atlantic blue shark the current biomass appears to be above the biomass at MSY. In many model runs, stock status appeared to be close to unfished biomass levels. A full evaluation of the sensitivity of model outcomes to the assumptions made by the Working Group (e.g. initial biomass) was not possible and it was recommended that such studies should be carried out before

drawing stronger conclusions. The Working Group stated that without solving these problems, they cannot present either more precise or accurate views of the status of these stocks, since the available data are quite uninformative.

No reference points have been proposed for this stock.

Document SCRS/2004/112 proposes a statistical framework for estimating blue shark movement and fishing mortality rates from the tag-recapture data of the NMFS Cooperative Shark Tagging Program. The dataset of the NMFS-CSTP shows potential for use in a blue shark stock assessment.

Indian Ocean: in 2005 (the latest data available to the IOTC Working Party on Bycatch and Ecosystems), seven countries reported catches of blue sharks in the IOTC region although this data is not used by IOTC as its likelihood of being representative is highly uncertain. FAO landings data on elasmobranchs for the Indian Ocean are severely limited by the lack of species-specific data and data from the major fleets.

There is little information on blue shark biology in the Indian Ocean and no information is available on stock structure. The catch estimates for blue shark are highly uncertain and CPUE trends are also not available as there are no surveys specifically designed to assess shark catch rates in the Indian Ocean. Trends in localised areas might be possible in the future (for example, from the Kenyan recreational fishery) but these are likely to be of limited use in assessing the stock of the Indian Ocean overall. A standardized CPUE for blue shark caught by the Japanese tuna longline fishery in the Indian Ocean was calculated using logbook data from the period 1971 to 2005. For much of this period, shark catches were not recorded by species, therefore all sharks were assumed to be blue sharks, which would of course lead to some over reporting of blue shark abundance. A recent Japanese observer programme in the Eastern Indian Ocean recorded 77 blue shark out of a total of 3,718 specimens. This was the highest catch rate among sharks species encountered at 0.268 per 1000 hooks. Other studies conducted in the Indian Ocean using observer data have shown that blue sharks constitute 1% of all species caught on longlines by number and up to 4% by weight, with sharks overall making up 1.76% by number and 5.38% by weight at a catch rate of 0.243 per 1000 hooks (MRAG, 2004) The results from the analysis indicate a relatively stable blue shark CPUE except for some relatively high catch rates in 1998 and 1999. Overall, the results of this analysis suggest that the stock status of blue sharks has not changed drastically over the past three decades in the high seas area of the Indian Ocean.

Due to the lack of data available no quantitative stock assessment has been undertaken by the IOTC Working Party on Ecosystems and Bycatch. There is a clear paucity of information available on this species and this situation is not expected to improve in the short to medium term. There is no quantitative stock assessment or basic fishery indicators currently available for blue shark in the Indian Ocean therefore the stock status is highly uncertain. Blue sharks are commonly taken by a range of fisheries in the Indian Ocean and in some areas they are fished in their nursery grounds. Because of their life history characteristics – they are relatively long lived (16-20 years), mature at 4-6 years, and have relativity few offspring (25-50 pups every two years), the blue shark is vulnerable to overfishing.

Pacific Ocean: blue shark is not actively managed internationally within the Pacific and there are no quotas set by any of the RFMOs. Recent studies indicate the species, which may comprise a single Pacific-wide stock, is abundant and healthy (F/FMSY $<$ 0.5). There is some evidence for a decline of the stocks of blue shark in the central Pacific (Nakano 1996), but not yet evidence of overfishing. The north Pacific blue shark stock appears healthy (Kleiber *et al*. MS1) with a current population size that is above BMSY with F/FMSY $<$ 0.5, and that MSY could be 1.7-3.0 times the catch observed in the late '80's early '90s. Sibert *et al.* estimate that the North Pacific blue shark population is at 91% of the unexploited level. In spite of being the largest component of the bycatch incidentally taken by high seas, longline fleets for over 50 years the MSY for the north Pacific stock is tentatively estimated to be approximately 120 000t. No harvest guidelines or reference points have been recommended at this time.

Existing specific management measures

EC Regulation No. 1185/2003 prohibits the removal of shark fins of this species, and subsequent discarding of the body. This regulation is binding on EC vessels in all waters and non-EC vessels in Community waters.

Data quality issues: the landings data for blue shark are unreliable due to the amount of pelagic sharks that are thought to be declared under generic sharks "nei" categories (Johnston *et al.*, 2005). ICCAT

completed a preliminary stock assessment in 2004, but no management recommendations were made. A joint ICES / ICCAT working group plan a new assessment in 2009.

Effectiveness of management measures

Catch data of pelagic sharks are considered unreliable as many sharks are not landed whole but are landed as fins. For accurate stock assessments of pelagic sharks, data from throughout the North Atlantic must be made available to the Working Group. In addition, reporting procedures must be strengthened so that all landings are reported, and that landings are reported to species level, rather than generic nei categories.

Recent management advice

According to the 2008 report of the SCRS of ICCAT, for both North and South Atlantic blue shark stocks, although the results are highly uncertain, biomass is believed to be above the biomass that would support MSY and current harvest levels below FMSY. Results from all models used were conditional on the assumptions made (*e.g.*, estimates of historical catches and effort, the relationship between catch rates and abundance, the initial state of the stock in the 1950s, and various life-history parameters), and a full evaluation of the sensitivity of results to these assumptions was not possible during the assessment. Nonetheless, as for the 2004 stock assessment, the weight of available evidence does not support hypotheses that fishing has yet resulted in depletion to levels below the Convention objective.

Shortfin mako shark *Isurus oxyrinchus*	
Order: Lamniformes	
Family: Lamnidae	
English: Shortfin mako shark, blue pointer, blue shark, bonito shark	
French: Taupe bleue	
Spanish: Marrajo dientuso	

Overview

The shortfin mako is a highly migratory pelagic species that is caught frequently as a bycatch, mostly in longline fisheries targeting tuna and billfish. Like porbeagle shark, it is a relatively high-value species (cf blue shark, which is of lower commercial value). Recreational fisheries on both sides of the North Atlantic also catch this species, although some of these fish are released.

The Shortfin Mako shark (*Isurus oxyrinchus*) is a large pelagic species attaining a maximum total length of 3.94m (DFO Atlantic Fisheries, 1996). The Shortfin Mako frequents warm-temperate and tropical waters circumglobally, preferring water temperatures ranging between 17 – 22 °C (DFO Atlantic Fisheries, 1996., NAFO, 2007). The Shortfin Mako is typically an offshore species that is present between the surface and a depth of 500 m, however they have also been observed in shallower littoral zones (NAFO, 2007). The Shortfin Mako's morphology is characterised by a crescent-shaped tail with pronounced keels in addition to its large fins (ICES, 2007).

The Shortfin Mako is an ovoviviparous species (DFO Atlantic Fisheries, 1996) that has a lifespan of 30 years (NAFO, 2007). Males are sexually mature at 7-9 years old at a total length of 2 – 2.2 m, whilst females become sexually mature at a much later age (18 – 21 years old), at which time their total length is 2.7 – 3 m (NAFO, 2007). The Shortfin Mako has a long gestation period of 15 – 18 months and only produces 11 young every 3 years (NAFO, 2007). The Shortfin Mako can be classified as an K-species due to its life history characteristics of low fecundity and delayed sexual maturity.

The life history characteristics of elasmobranchs that makes them susceptible to exploitation are less apparent in the Shortfin Mako meaning it has a greater recovery potential than other elasmobranch species. The reason for this is due to the fact that the Shortfin Mako' has a rapid growth rate in comparison to other elasmobranchs (DFO Atlantic Fisheries, 1996). However, in comparison to the commercial teleost fisheries species the Shortfin Mako's growth rate is still moderate (NAFO, 2007).

The susceptibility of the Shortfin Mako to exploitation is increased due to their migrational movements. Tagging work on Shortfin Makos in the North Atlantic has shown that they migrate over 3 000 km (ICES, 2007). This is supported by the DFO Atlantic Fisheries (1996) who found that the Shortfin Mako exhibited seasonal movements.

The fishery

Gear types, fishing fleets and their distribution: In the ICES area, shortfin mako sharks are caught predominantly by Portuguese and Spanish vessels in Subareas, VIII, IX, and X. EC vessels also operate in FAO Area 34.

EC directed catch trends and characteristics: the Portuguese catches make up the vast majority of EU landings, accounting for 730 of the 820 t caught over in ICES waters 2006. Over half this was caught in area IX (off the west coast of Portugal), with 141 t caught in area X (Azores).

Incidental catch characteristics: Estimates of shortfin mako bycatch are difficult, as available data are limited and documentation is incomplete. There is considerable bycatch of shortfin mako sharks in Japanese and Taiwanese tuna longliners operating in the Atlantic. Estimates given in Matsunaga and Nakano (2005) indicate bycatch levels in Japanese longline operations of 300 to 500 t of shortfin mako annually for the North Atlantic.

Status of the stocks

Atlantic Ocean stocks: historically the Shortfin Mako has been caught as bycatch predominantly in tuna and billfish longline fisheries. It is a high value species and as such is also targeted by recreational fisheries in both the North East and North West Atlantic. At present there is still no directed fishery towards the Shortfin Mako which is considered to have only a single stock in the North Atlantic.

Current EU catches of the Shortfin Mako are predominantly by Portuguese and Spanish vessels, although landings from Spanish vessels only began in 2004. The UK also have reported landings, but these are negligible being below 3 tonnes. The Portuguese report the largest landings with the maximum reported being 542 tonnes in 2003, which made up 50 % of the total North Atlantic reported landings (ICES, 2007). The catch data provided is incomplete and as such it is difficult to accurately determine catches and produce stock assessments. However, CPUE data has shown that the North Atlantic stock has been declining since 1975 although further analysis is required (ICES, 2007).

Despite the catch data available and the CPUE data indicating declining stocks there have been no recent stock assessments. A decision was taken not to undertake stock assessments as there was limited data all of which was considered poor quality. The lack of accurate precise data is emphasized by the fact that NAFO uses commercial and recreational fisheries to provide them with abundance indices (NAFO, 2007).

Mediterranean stocks: it is considered that there are two stocks of Shortfin Mako in the Mediterranean; a Northern Stock and a Southern Stock (ICCAT, 2005). A lack of available landings data and relevant catch data from commercial fisheries has resulted in no stock assessments being able to be undertaken. Increased levels of data recording are required to enable stock assessment to be achieved.

Indian Ocean stocks: historically there has been very little information on the status of the Shortfin Mako fishery in IOTC waters and it is apparent that landings of Shortfin Mako have gone unreported in the past. Consequently, IOTC catches of Shortfin Mako sharks are highly inaccurate and have little representativeness. (IOTC, 2007)

A lack of representative data is emphasized by the fact there is no extensive FAO data due to a lack of species-specific data from major fleets (IOTC, 2007). A lack of landings information subsequently means it has not been possible to carry out a stock assessment. In addition CPUE has not been available as no surveys have been carried out enabling the suitable data to be obtained to produce the relevant CPUE information.

Existing specific management measures

EC Regulation No. 1185/2003 prohibits the removal of shark fins of this species, and subsequent discarding of the body. This regulation is binding on EC vessels in all waters and non-EC vessels in Community waters.

Effectiveness of management measures

Catch data of pelagic sharks are considered unreliable, as many sharks are not reported on a species-specific basis, and some fisheries may have only landed fins.

Recent management advice

According to the 2008 report of the SCRS of ICCAT, estimates of stock status for the North Atlantic shortfin mako obtained with the different modelling approaches were much more variable than for blue shark. For the North Atlantic, most model outcomes indicated stock depletion to about 50% of biomass estimated for the 1950s. Some model outcomes indicated that the stock biomass was near or below the biomass that would support MSY with current harvest levels above FMSY, whereas others estimated considerably lower levels of depletion and no overfishing. There is a non-negligible probability that the North Atlantic shortfin mako stock could be below the biomass that could support MSY. A similar conclusion was reached by the Committee in 2004, and recent biological data show decreased productivity for this species. Only one modelling approach could be applied to the South Atlantic shortfin mako stock, which resulted in an estimate of unfished biomass which was biologically implausible, and thus the Committee can draw no conclusions about the status of the South stock

Tiger shark (Galeocerdo cuvier)

Overview: the tiger shark is found throughout the world's temperate and tropical waters, with the exception of the Mediterranean Sea. It is a wide-ranging species that is at home both in the open ocean as well as shallow coastal waters. Reports of individuals from as far north as Iceland and the United Kingdom have been confirmed but are probably a result of roaming sharks following the warmer Gulf Stream north across the Atlantic.

Status of the stocks

Atlantic Ocean stocks: both commercial and recreational fishing catch rates for this species in the mid-Atlantic region have declined since the mid-1980's, indicating that fishing pressure has adversely affected the size of the population. In contrast, relative abundance and catch rates for this species noted by commercial fisheries observers, especially for juveniles, are much higher than in previous fishery-independent and fishery-dependent surveys. The World Conservation Union (IUCN) presently lists the tiger shark as “Near Threatened” throughout its range.

(Ps.: listing at present indeed Lower Risk/Near Threatened)

Pacific Ocean stocks: there are no directed fisheries for Tiger sharks in the Pacific Ocean; however they are caught as bycatch in longline fisheries. Tiger sharks are also caught as part of shark control programs introduced around the cost of Australia (QDPI, 2001).

Comments from the IUCN SSC Shark Specialist Group

Well, my main comment is with regards being a bit more precise about the criteria used (which should be semi-quantitative) when deciding whether species are on or off this list. This would be helpful for other taxonomic groups as well.

I suggest that a number of criteria are tabulated and marked on a sliding scale of, say 0 to 4, for each species. Then we assign a cut off level for the total score, above which each species is considered to be a priority. The advantage of this would be that it also ranks priority and 'near miss' species.

Suggestions, in no particular order:

i) Percentage of range unmanaged (4 - 0, where 0 means that the entire range is under management)

ii) Productivity (lowest = 4, highest = 1)

iii) Threatened status (CR/EN/VU/NT = 4/3/2/1) [not sure what to do with DD]

iv) Identification under international instruments (UNCLOS, CMS, regional conventions)

iv) Occurrence in fisheries (high to low)

v) Volume in trade (high to low/none)

vi) Trade as a driver of exploitation or bycatch mortality (high to low/none) [v and vi are not the same, for example for particularly rare/threatened species]

viii) Potential to identify the most important products in trade (high to low/none) [i.e. could a CITES listing be implemented - if the score is low for this criterion, although the species has a high overall score, then a CITES listing is possibly not appropriate, although it is clearly a priority for (other) management action].

Regards,
Sarah

Comments from Species Management Specialists

I apologize for my tardiness in not responding in a timely fashion to the document (Report of the Shark Intersessional Group on the Implementation of Decision 14.107) circulated last year. It slipped through the net. I realize we are running short of time for finalizing documents for the upcoming 24th meeting of the Animals Committee, but believe that there are some important issues to be considered. Not withstanding my own late response, I note you have received little in the way of comments from the Working Group members, which is surprising.

1. According to the computer identification, this document was authored by Sarah Fowler, from the IUCN/SSC Shark Specialist Group. Sarah and the SSG have been very strong advocates for listing shark and ray species on the Appendices of CITES, so I believe it is important that other Working Group members are fully aware who the author was.

2. It should also be made clear whether Sarah did this work in a personal capacity (as a consultant), in her capacity as SSG Chair, or in her capacity as a representative of either SSC or IUCN. At the 24th Animals Committee Meeting it is likely that IUCN with make a statement (prepared by Sarah and the SSG) supporting the Working Group's findings (authored by Sarah), which is clearly not independent commentary based on independent evaluation by the IUCN, and may obviously be misleading for AC members.

3. Throughout the document, it is stated that various species are considered either "globally endangered" or "globally vulnerable" by the IUCN. This is a highly misleading term of phrase in relation to the Red List determinations which cannot be used to conclude that a species is globally endangered or vulnerable throughout their range. It would be better to state clearly (once), that with widely distributed marine species such as the sharks assessed here, the status of any one species is typically a mosaic - secure and protected in some parts of its range and depleted to varying degrees in other parts of its range, due to both managed and unmanaged harvest (in the case of sharks). The Red List considers the extent of decline in the total global population as a single unit, over 10 years or 3 generations, and allocates it's category of risk accordingly. A species that meets the decline criteria for the Red List "endangered" category simply means that the total world population i

4. Similarly, the report refers to species in some areas harvested to levels of population decline below those calculated as providing maximum sustainable yield. This in itself constitutes a commercial problem. If the population declines and stabilizes below MSY the potential annual harvest is less than it would be if the population stabilizes at MSY. It is therefore a commercial problem rather than a biological problem and is not in itself an indication that there is any risk of extinction. The level of population decline needed

before biological extinction ("survival of the species" … the gatekeeper for CITES involvement) is well below MSY.

5. For the majority of species no "recommendation" is made, and for others, it is concluded that the risk is such that they can be removed as species of concern. It is somewhat puzzling why hammerhead sharks (Sphyma spp.) have been singled out as the only priority species of concern. I am not aware of any serious harvesting of hammerhead sharks solely for their fins, and would very much like to see the data that lead Camhi et al. (2008) to conclude this. Referring to unnamed and unreferenced studies indicating serious declines is hardly evidence the AC members should heed. The paper states "some studies … etc" but is followed by one reference to a single study. The scattered and superficial information available from which to assess the status of hammerheads is not much different to that available for other species, where no recommendation is made, or where removal is recommended. So why are hammerheads singled out for such a priority?

6. One obvious potential reason, that AC members should be alerted to, is that of the species examined here, hammerheads, with their unique head shape, are arguably the most "charismatic" of the group, and thus the most suitable for winning public appeal for extra-protection levels, which is the way listing on the Appendices of CITES is often promoted to the public. That is, it appears from an advocacy point of view to be the easiest of the listed species to win political support for listing from the Parties. If this is indeed the reason for listing hammerheads as a priority then it should be stated openly and transparently.

7. Within most species accounts it is stated that various jurisdictions have banned the practice of fining of sharks. This only needs to be stated once, where it should also be stated that it is a response to animal welfare concerns, well supported by industry, rather than a contribution to improving the sustainability of commercial harvests of sharks! It is simply uneconomic to harvest pelagic shark species for fins alone although these may be included in bycatch. To continually attempt to link fishing effort with the demand for shark fins is mischievous and misleading. Indeed, if this was the case, there would seem to be little purpose in countries reporting to FAO on the tonnages harvested in each region. The implication that the shark fin industry is the major driver of all declines in all sharks species is simply not true. It is clear from many of the case histories discussed here that commercial harvesting for meat is a major driver, and those harvested most have high numbers

8. Similarly, if there are lists (rankings) available of the abundance of different shark fins in trade, and the relative desirability of the fins of different species (regardless of abundance) this information should be used objectively: 8th most abundant species in trade (of ….. species examined) and the 2nd most desirable (of …. ranked). Abundance in trade does not indicate desirability or high price - simply abundance. That is, they may be the most common in the wild and the least likely to need CITES intervention. Statements such as the meat and fins are "valuable" (thresher shark) or are "highly valued" (Hammerhead Shark, Sandbar shark) seem contrived … which ones are lowly valued?

9. With regard to "blue sharks", it would seem that all blue shark meat derived from Japan fisheries is utilized for human consumption.

10. No one doubts that stocks of many shark species, indeed many if not most commercially harvested species of marine fish, have declined over recent decades and are at present either fully or over-exploited fisheries. This does not appear to be related to whether they have fins or other byproducts that are valued for food by some cultures of people, but rather because they are a food fish.

11. The whole issue of by-catch mortality is poorly understood and warrants much more detailed assessment in order to accurately interpret catch data and the use of by-catch. Caution needs to be exercised here in drawing speculative conclusions.

12. The problems that have been identified with respect to the sustainability of many shark fisheries and the issue of shark by-catch are clearly fisheries management problems that can only be solved by changing fisheries management practices. They will not be solved simply by listing species in the Appendices to CITES. It is difficult to understand how a CITES listing will address management problems or contribute positively to improving the overall sustainability of these fisheries.

13. It is equally clear that some species are becoming the focus of management measures to enhance the sustainability of harvest levels. These measures need to be expanded and implemented by more

fishing nations in a broader range of geographic regions. Most importantly, the measures that are being adopted through national implementation of the FAO IPOA-Sharks or through RFMOs require time to gauge the extent to which they have had the desired effect.

14. It stands as an anachronism that Resolution Conf. 12.6 commits the Animals Committee to ongoing detailed assessment of shark species, not listed on the Appendices of CITES, at the exclusion of many other (non-shark) marine and freshwater species that may arguably be far more depleted than the majority of sharks. Given that the detailed assessment here seems to have resulted in only one species being assigned a priority for listing (on grounds that may be quite dubious), one can only conclude that the process seems to have outrun its usefulness while adding to the work load of the Animals Committee. It may be prudent for the Animals Committee to objectively assess whether Resolution Conf 12.6 should be amended to remove the present task of the Committee to continuing to identify shark species for possible listing under CITES.

15. Given the need to submit a document to the Secretariat in the next few days, it is obviously not possible to incorporate the foregoing comments into the original discussion paper. However, I believe the views expressed are sufficiently important to warrant open discussion when the working group meets during the next meeting of the Animals Committee. As such, I would be grateful if you would attach this response to your report to the Committee.

Regards and apologies
Hank Jenkins

Comments by Alternative Member-Singapore

I refer to Hank's e-mail.

I had been in contact with you a few times. I look forward to seeing the draft you are putting up for us, before this is submitted to AC. I hope that the points I made are incorporated.

Hank has mentioned some of the reservations I have over the decision of COP to refer this matter to AC, and the way it is handled subsequently. I agree with Hank, and should say that Hank has made us stand back and look at it on an overall basis.

We need to remind ourselves of the following -

a.. Not all sharks are overfished. Only a few are, and in some waters.

b.. Sharks have been harvested by the millions for their meat

c.. In haste, COP singled out sharks, and not any endangered species, whether land or sea creatures, for AC to work on. And these sharks are not listed, and even rejected for listing by COP

d.. Management is key to saving sharks populations. Listing sharks in CITES would not prevent the EU from catching huge quantities (and have unfettered internal trade). Listing will prevent export of the same sharks by one country to another

I will elaborate on a point Hank makes –

"7..... To continually attempt to link fishing effort with the demand for shark fins is mischievous and misleading. Indeed, if this was the case, there would seem to be little purpose in countries reporting to FAO on the tonnages harvested in each region. The implication that the shark fin industry is the major driver of all declines in all sharks species is simply not true..... The harvesting for meat would continue regardless of whether the fins were sold as fins to those who eat them or used for fish meal or fertilizer."

I pose the following questions –

a.. Shark fins – Concerted efforts have been made to portray to the world that the shark fin industry is the primary cause of overfishing of sharks. As you know this is not true. Europe does not catch the spiny dogfish to sell its fins to the Far East. I would like to know the stand of IUCN or SSG.

b.. 'Live finning' of sharks – This is a cruel practice and should be stopped. Fins traded come from dead sharks ('dead-fins') and live sharks ('live-fins'). Most of the fins traded are from 'dead-fins'

c.. There is an anti-fin lobby. The lobby manages to mislead, and legislators innocently lump all fins together and call it "finning". This makes the world abhor shark fin soup, because it is given the impression that the majority of fins are 'live-fins'. 'Live fins' form a small percentage of fins traded worldwide.

Kind regards

Choo-hoo GIAM