Inclusion of Scalloped Hammerhead Shark *Sphyrna lewini*, Great Hammerhead Shark *Sphyrna mokarran*, Smooth Hammerhead Shark *Sphyrna zygaena*, Sandbar Shark *Carcharhinus plumbeus,* and Dusky Shark *Carcharhinus obscurus* in Appendix II

Proponent: Palau and the USA

Summary: The Scalloped Hammerhead Shark *Sphyrna lewini* is a large circumglobal species found in distinct ocean basin populations in coastal warm temperate and tropical seas. It has low productivity due to several life history characteristics including: long life span (up to at least 30 years), large size at maturity (108–200 cm or more depending on sex and population), late age at maturity (6–17 years), long generation time (20 years), long gestation time (8–12 months), relatively low litter size (12–41 pups per litter) and low population growth rate (8–10% per year). In much of their range, Scalloped Hammerheads are caught both in targeted shark fisheries, where they make up a large proportion of total catches, and as by-catch by longline, gillnet, coastal trawlers and purse-seine fleets. In some countries these sharks are also caught in recreational fisheries. Juveniles and neonates are heavily targeted in many locations. Where data are available on abundance and catch rates of Scalloped Hammerheads or a hammerhead complex including two other sphyrnid species (*S. zygaena* and *S.mokarran*), marked historic declines to below 15–20% of baseline as well as recent declines are evident. These include: a stock assessment of Scalloped Hammerheads in the North West Atlantic reporting an 83% decline in 24 years; decline in catch per unit effort of Scalloped Hammerheads by 98% in 32 years off North Carolina (United States of America); stocks in the Eastern Pacific (Cocos Island National Park) and South West Indian Ocean (South Africa) have also undergone declines of around 60–70% over the course of between eight and 25 years. Data aggregated for the hammerhead shark complex (*S. lewini*, *S. mokarran* and *S. zygaena*) follow similar declines including up to 99.9% in the Mediterranean since the early 19th century, by more than 85% over 44 years off the Queensland coast in Australia, and by 93% in industrial landings of sphyrnids in southern Brazil between 1994 and 2008. Scalloped Hammerheads are heavily exploited in several data-poor areas, including large parts of the Western Indian Ocean and the Western Pacific, where similar declines are suspected.

Scalloped Hammerhead fins are among the most highly valued in the international fin trade due to their large size and high needle count (meaning these fins are particularly desirable as the needles are the consumerable part of the fin). Patterns and trends in international trade are largely unknown due to lack of species-specific trade records. However, commercial trade records and genetic analysis of the Hong Kong fin market provided a combined estimate of 1.3–2.7 million Scalloped Hammerheads and Smooth Hammerheads harvested for the fin trade annually. Genetic analysis of a sample of fins in the Hong Kong market indicated that Scalloped Hammerheads are exploited for the fin trade from populations in the Indo-Pacific, East and West Atlantic. Growing demand for fins is driving increased retention and targeting of hammerheads, including Scalloped Hammerheads. Hammerhead shark meat is often considered unpalatable because of a high concentration of urea; nonetheless, there are some records of international trade. In some regions, such as Brazil, Scalloped Hammerhead neonates and juveniles are targeted by coastal gillnet fisheries and traded in domestic markets. Scalloped Hammerheads are listed on various international conventions, but species-specific management measures have yet to be introduced. As of January 2010, capture of Scalloped Hammerheads will be prohibited in Spanish fishing fleets wherever they operate. Scalloped Hammerheads should be gaining some protection from various regional shark finning bans, wherever they are effectively enforced, as well as shark fishing bans throughout the Exclusive Economic Zones of French Polynesia, Palau and the Maldives. Scalloped Hammerheads are listed globally as Endangered on the *IUCN Red List of Endangered Species*, with regional populations assigned individual listings of Vulnerable and Endangered.

The Food and Agriculture Organization of the United Nations (FAO) Committee on Fisheries (COFI) recognized the need to improve management of shark fisheries with the adoption in 1999 of the International Plan of Action for the Conservation and Management of Sharks (IPOA–Sharks), endorsed by the FAO Council in 2000. In 2009, FAO reported that out of 68 members responding to a questionnaire, 50% had conducted assessment as to whether a National Plan of Action (NPOA) was needed; 90% of those have gone on to develop and implement an NPOA. To date there has been no assessment of the effectiveness of NPOAs.

The Scalloped Hammerhead is proposed for inclusion in Appendix II under *Resolution Conf. (Rev. CoP14)* Annex 2a because of significant and continuing population declines driven by the international fin trade and caught as by-catch in other fisheries. The proposed listing would include an annotation to delay entry into effect of the inclusion by 18 months to enable Parties to resolve related technical and administrative issues. The Great Hammerhead Shark *Sphyrna mokarran*, the Smooth Hammerhead Shark *Sphyrna zygaena*, the Sandbar Shark *Carcharhinus plumbeus*, and the Dusky Shark *Carcharhinus obscurus* are also proposed for listing in Appendix II under *Resolution Conf. (Rev. CoP14)* Annex 2b criterion A for look-alike reasons. All are caught in targeted and by-catch fisheries and their fins are traded internationally. Fins from all these species are thin and falcate with the dorsal fin height longer than its base. As fins in trade, hammerhead fins, along with fins from *C. plumbeus* and *C. obscurus*, are morphologically similar to *S. lewini*. Hammerhead catches are often amalgamated as *Sphyrna* spp., and *S. lewini* is often confused with *S. zygaena*. Because of the difficulty in identification of these larger hammerhead species, catches of *S. lewini* are often amalgamated with *S. mokarran* and *S. zygaena*. Because of the higher value associated with the larger triangular fins of hammerheads and *Carcharhinus plumbeus* and *Carcharhinus obscurus*, traders sort them separately from other carcharhinid fins, which are often lumped together. Sorting fins to species is done by professional fin processors but this does not occur until late in the trade chain and certainly occurs after Customs would be officially required to identify fins to species.

The four other species proposed share many life history characteristics with Scalloped Hammerheads, making them vulnerable to exploitation and slow to recover. A series of stock assessments in the North West Atlantic have shown the following declines: Great Hammerheads declined by 96% between 1981 and 2005, Smooth Hammerheads declined by 91% between 1981 and 2005, Sandbar Sharks declined by 64–71% from unexploited levels, and Dusky Sharks declined by at least 80% from unexploited levels.

Analysis: The Scalloped Hammerhead is the target of fisheries that are driven by the international fin trade and is also caught as by-catch in other fisheries, with the products entering international trade. The species is intrinsically vulnerable to overexploitation. Harvest has led to major declines in some areas such that some stocks would appear already to meet the criteria for inclusion in Appendix I. Similar declines are suspected in other areas where the species is known to be harvested, but quantitative data are lacking. All subpopulations of the species have been assessed as either Vulnerable or Endangered by IUCN and there are not known to be any major unexploited populations. It would appear therefore that the species meets the criteria for inclusion in Appendix II, in that regulation of the trade is required to ensure that the species does not become eligible for inclusion in Appendix I, assuming that it does not already do so.

Scalloped Hammerheads are primarily in trade as fins. These fins are traded with those of the other four species proposed here for look-alike reasons. While fin traders with expert knowledge are able to sort shark fins reliably to species—except notably for Scalloped and Smooth Hammerheads which are often grouped together at all stages in the supply chain—such sorting typically does not occur until after Customs would be officially required to identify fins to species. DNA tests are available to confirm species identification for sharks but are not suitable for routine Customs checks. Hence it would seem that these other species do meet criterion A in Annex 2b of *Resolution Conf. 9.24 (Rev CoP14)* based on the difficulty of distinguishing their fins from those of Scalloped Hammerheads.

Supporting Statement (SS)	Additional information

Taxonomy

Supporting Statement (SS)	Additional information
Range	
Circumglobal distribution in coastal warm temperate and tropical seas in the Atlantic, Pacific and Indian Oceans. Distinct breeding populations within each ocean basin, including North West Atlantic, Caribbean Sea, South West Atlantic, Eastern Central Atlantic and Indo-Pacific populations which are likely based on strong genetic traits. Nursery populations linked by continuous coastline have high connectivity. Adult sharks use offshore oceanic habitats (e.g. seamounts, continental shelves) and do not regularly roam large distances. **Number of FAO fishing areas present in:** Scalloped Hammerhead: 11 Great Hammerhead: 13 Smooth Hammerhead: 14 Sandbar Shark: 10 Dusky Shark: 10	***Scalloped Hammerhead:*** *Juveniles were formerly distributed throughout the continental shelf (Kotas, 2009). Females migrate seasonally inshore for pupping. Pregnant females have high fidelity to their native pupping grounds (Ibid).* ***Great Hammerhead:*** *Widely distributed throughout tropical waters, 40^0N–35^0S. Apparently nomadic and migratory with some populations moving polewards in the summer.* ***Smooth Hammerhead****: Has a wider range than other members of its family occurring in the Atlantic, Pacific and Indian oceans.* ***Dusky Shark:*** *Cosmopolitan but patchy distribution in tropical and warm temperate seas, including western and eastern Atlantic, Mediterranean, Indian Ocean, western and eastern Pacific.* ***Sandbar Shark:*** *Occurs worldwide in tropical and warm temperate waters, including northwestern and eastern Atlantic, Mediterranean, western Indian Ocean, western and eastern Pacific.*
IUCN Global Category	
Scalloped Hammerhead: Globally–EN Great Hammerhead: Globally–EN Smooth Hammerhead: Globally–VU Dusky Shark: Globally–VU Sandbar Shark: Globally–VU	***Scalloped Hammerhead:*** *Global species assessment Endangered A2bd+4bd (Assessed 2007, Criteria ver. 3.1).* *East Central and South East Pacific subpopulation–EN* *East Central Atlantic subpopulation–VU* *North West and West Central Atlantic subpopulation–EN* *South West Atlantic subpopulation–VU* *West Indian Ocean subpopulation–EN* ***Dusky Shark:*** *Global species assessment Vulnerable A2bd (Assessed 2007, Criteria ver. 3.1).* *North West Atlantic and Gulf of Mexico subpopulation–VU* ***Sandbar Shark:*** *Global species assessment Vulnerable A2bd +4bd (Assessed 2007, Criteria ver. 3.1).* *North West Atlantic subpopulation–Lower Risk/conservation dependent*

Supporting Statement (SS)	Additional information

Biological and trade criteria for inclusion in Appendix II *(Resolution Conf. 9.24 (Rev. CoP14)* Annex 2 a)

A) Trade regulation needed to prevent future inclusion in Appendix I

Scalloped Hammerheads have several life history characteristics that make them highly vulnerable to over-exploitation in fisheries and will be slow to recover, including long life span (up to 30 years), large size at maturity (108–200 cm depending on sex and population), late age at maturity (6–17 years), long generation time (20 years), long gestation time (8–12 months), relatively small litter size (12–41 pups per litter), and low population growth rate (8–10% per year). In one demographic study, Scalloped Hammerheads were found to have among the lowest productivity compared to 26 other shark species.

Populations of Scalloped Hammerheads, and in some cases of the hammerhead shark complex (*S. lewini, S. mokarran, S. zygaena*), have undergone marked long-term and recent declines in the Atlantic, Mediterranean, and Indo-Pacific, as evidenced by stock assessments and catch rates. Other stocks are likely to experience similar declines unless trade regulations provide an incentive to introduce sustainable management.

The Scalloped Hammerhead has declined to at least 15–20% of baseline in many populations. Based on shorter-term abundance series, recent rates of decline are projected to drive this species down from the current population level to the historical extent of decline within approximately a 10-year period.

Details of the severe declines in hammerhead populations and catches are given in the SS and summarized below.

Years	Location	Data Source	Trend
Sphyrna lewini			
1972–2003	NW Atlantic	CPUE	98% decline*
1981–2005	NW Atlantic	SA (C, LH, CPUE)	83% decline*
1994–2005	NW Atlantic	CPUE	56% increase*
1993–2001	SW Atlantic – inshore	CPUE	60–90% decline
1992–2004	E Pacific (Cocos Is)	S	71% decline*

Size at maturity for Scalloped Hammerheads occurs between 150–250 cm, depending on sex and population (Branstetter, 1987, Stevens and Lyle, 1989).

An individual female Scalloped Hammerhead from southern Brazil was aged at 36.5 years (Kotas, 2009).

There are conflicting estimates of growth rates and productivity for Scalloped Hammerheads, probably confounded by regional variation and differences in methodologies between studies (Cortes, 2002). Ages and therefore growth rates of Scalloped Hammerheads are yet to be validated anywhere (Piercy et al.*, 2007).*

Despite assessment of the Australian subpopulation of Scalloped Hammerheads as Least Concern in 2003 by the IUCN Shark Specialist Group (Cavanagh et al., *2003), preliminary results from a 44-year dataset from the Queensland Shark Control Programme suggested a long-term decline (the 85% decline in the West Pacific listed in the table opposite) in hammerheads in the Cairns and Townsville region (de Jong and Simpfendorfer, 2009).*

Very large declines in Scalloped Hammerheads in most areas are evident, but should also be considered in the context of original population sizes, which were probably also very large (e.g. estimated abundance in north-west Atlantic after 1995 in one assessment was 25–45 000 individuals, Jiao et al., *2008).*

A 62% decline in landings of Scalloped Hammerheads is reported from the southern Mexico Pacific coast (Soriana et al., *2006).*

Industrial landings of the Sphyrna *group (mainly* S. lewini *and* S. zygaena*) in Santa Catarina State, southern Brazil underwent an overall decline of 93% between 1994 and 2008, following a peak of 570 t in 1994, and smaller peaks of 202 t in 1998, 353 t in 2002, and 381 t in 2005, eventually falling to 44 t in 2008 (Kotas, 2004). This was largely driven by rapid expansion in a gillnet fishery that targeted mainly hammerheads for the international fin trade (Ibid). Steep declines in CPUE (kg/cruise) were also observed for hammerheads caught by longliners and bottom gillnetters based in the same region (Kotas, 2004; Kotas, 2009).*

More than an 80% decline in Sphyrnid *catches and CPUE was observed in a driftnet fishery supplying the fin trade operating along the southern Brazilian coast during the period 1995–2005 (Kotas* et al.*, 2008).*

Supporting Statement (SS)				Additional information
2004–2006	E Pacific	L	49% decline	*CPUE of hammerheads (mostly* S. zygaena *and* S. lewini*) in industrial bottom gillnets based in Santa Catarina State, southern Brazil, declined from 365 kg/trip in 2000 to 15 kg/trip in 2008 (a decline of around 96% in eight years), indicating that declines may be more severe in coastal areas where the neonates and juvenile hammerheads*
1978–2003	SW Indian	CPUE	64% decline*	
1989–1992	SW Indian	C	47% decline in neonates	
***Sphyrna* complex (*S. lewini*, *S. mokarran*, and *S. zygaena*)**				
1986–2005	NW Atlantic	CPUE (C, LH, CPUE)	89% decline*	
1981–2005	NW Atlantic	SA (C, LH, CPUE)	72% decline	
1898–1922, 1950–2006, 1978–1999, 1827–2000	Mediterranean	CPUE	99% decline*	
1978–2007	SW Atlantic – offshore	CPUE	None	
***Sphyrna* spp. (Hammerhead sharks)**				
2004–2006	E Pacific (Ecuador)	L	51% decline	
1963–2007	W Pacific	CPUE	85% decline	
1997–8 & 2004–5	E Indian	CPUE	50–75% decline	
1992–2005	NW Atlantic	CPUE	76% decline*	
1994–2005	NW Atlantic	CPUE	25% decline*	
1983–4 & 1994–5	NW Atlantic	CPUE	66% decline	

CPUE=Catch Per Unit Effort, L=Landings, C=Catch, SA=Stock Assessment, S=Sightings, LH=Life History. *Data have undergone statistical standardization to correct for factors unrelated to abundance.

are more common (Kotas, 2009). In contrast, offshore driftnet fleet recorded a relatively stable catch rate trend with some fluctuations (in 2008 the driftnet CPUE was 4700 kg/trip). However, this information should be considered with caution since this industrial fishery collapsed in 2008, with only a few vessels remaining in the region (Ibid). For industrial offshore longliners, CPUE declined from 1461 kg/trip in 2000 to 105 kg/trip in 2008, over a 90% decline (Ibid).

Supporting Statement (SS)	Additional information

Recreational shark fisheries became extremely popular in the North West Atlantic with the release of the motion picture 'Jaws', and associated declines in abundance were observed in the 1970s and 1980s. Scalloped Hammerheads in the North West Atlantic seem to have stabilized at relatively low levels and possibly increased from mid-1990s levels.

Scalloped Hammerhead population and catches are not available from the eastern Atlantic other than the Mediterranean. Nevertheless, similar declining trends are expected in the North East and Central Atlantic as have been documented in the North West Atlantic, since longline fleets have shifted effort from western to eastern waters where they are exerting comparable fishing effort.

In the South West Atlantic, inshore fisheries catch rates have undergone recent declines by up to 90%, while offshore fleets recorded a relatively stable catch rate trend indicating that declines may be more severe in coastal areas where Scalloped Hammerheads are more common.

Hammerhead sharks have declined dramatically in Belizean waters in the past 10 years as a result of over-exploitation, leading to a halt in the Belize-based shark fishery. Pressure is sustained in this area by fishers entering Belizean waters from Guatemala. Few other sources of information are available to assess the Caribbean population of Scalloped Hammerheads, although they are caught in various fisheries along the Caribbean coasts of South America, Guyana, Trinidad and Tobago and in the eastern Caribbean Sea.

Juvenile Scalloped Hammerheads are heavily targeted and taken as by-catch in fisheries throughout the Eastern Pacific and Southeast Asia. Large hammerhead sharks were formerly abundant off the Pacific Coast of Central America but were reported to be depleted in the 1970s. As traditional and coastal fisheries in Central America are depleted, domestic fleets have increased pressure at adult aggregating sites such as Cocos Island and the Galapagos Islands, or along the slopes of the continental shelf where high catch rates of juveniles can be obtained.

There is reason to suspect that declines have also occurred in areas where Scalloped Hammerheads are subjected to high fishing pressure but where data are unavailable to assess population status and trends, including Southeast Asia and Western Indian Ocean.

Supporting Statement (SS)	Additional information
B) Regulation of trade required to ensure that harvest from the wild is not reducing the wild population to a level where survival might be threatened by continued harvest or other influences	
Scalloped Hammerheads are subject to target and non-target fisheries in parts of their range, driven by international demand for their valuable fins (see Section A above for details of stock declines). Hammerhead shark fins are highly desired in the fin trade due to their large size and high needle (ceratotrichia) count. The average wholesale price for dry/unprocessed Scalloped Hammerhead fins is USD135/kg making them among the most valuable fin types on the market. *S. lewini* and *S. zygaena* fins account for just under 5% of the Hong Kong fin trade. Commercial trade data from the Hong Kong fin market, combined with DNA and statistical analysis to account for missing records, provide a combined estimate of 1.3–2.7 million Scalloped Hammerheads and Smooth Hammerheads harvested for the fin trade every year. Greater international demand for fins and flesh since the late 1990s is known to have resulted in a substantial increase in the retention rates and targeting of sharks, including hammerheads, in the South West Atlantic and by longline fleets in the Central and South East Pacific. Hammerhead shark meat is often considered unpalatable because of high urea concentrations. Nonetheless, there are some records of international trade including from the Seychelles to Germany and from Uruguay to Brazil, Spain, Germany, the Netherlands and Israel. Hammerhead shark is favoured for its meat in Spain and Japan. Scalloped Hammerheads are a preferred species for production of leather and liver oil, and there is some use of jaws as marine curios. Hammerhead sharks have been documented in illegal, unreported, and unregulated fishing activities including 120 longline vessels operating illegally in the Western Indian Ocean and industrial vessels and shark finning elsewhere in the Indian Ocean. Illegal shark finning in the Galapagos Islands is likely to include Scalloped Hammerheads due to their local abundance, and the high value of their fins. Scalloped Hammerheads are fished heavily, both in target and by-catch fisheries, in western Africa by artisanal and offshore European fisheries. *Sphyrna* species comprised over 40% of the total by-catch taken by European industrial freeze trawlers targeting small pelagic fish off Mauritania from 2001–2005. Scalloped Hammerhead catches off Mauritania are exclusively juveniles. Declining catch rates in West African sharks, and Scalloped Hammerheads in particular, off Senegal and	*Unpublished data show an average wholesale auction price for dried/unprocessed Oceanic Whitetip fins as USD125/kg (range USD8–470/kg) (Clarke, 2009). The average price for hammerheads is less than for Oceanic Whitetips (*Ibid*).* *Genetic stock identification of fins collected from the Hong Kong market indicated that Scalloped Hammerheads from populations in the Indo-Pacific, East and West Atlantic are exploited for the fin trade (Chapman* et al.*, 2009). From a sample of 62 Scalloped Hammerhead fins, 21% were from the West Atlantic, indicating that the international fin trade remains a threat to the endangered population in this region (*Ibid*).* *In some regions, such as Brazil, hammerhead neonates (mainly Scalloped Hammerheads) are targeted by coastal gillnet fisheries and traded in domestic markets (Kotas, 2009). Summertime recreational fisheries also catch many Scalloped Hammerhead neonates (Ibid).*

Supporting Statement (SS)	Additional information
Gambia have been noted. The Scalloped Hammerhead is one of five dominant species in shark fisheries in Oman. FAO shark landings data for Oman report varied catches of between approximately 3000–8000 t since 1985, with peaks in the mid-1980s and 1990s, and a decline to under 4000 t in 2000. Large sharks, including Scalloped Hammerheads, appear to have undergone declines. In the eastern Pacific, Scalloped Hammerheads are a common catch in target shark fisheries: 36% of total catch in an artisanal shark fishery in the Gulf of Tehuantepec, Mexico; 6–74% in various areas in Guatemala; 12% in El Salvador. Scalloped Hammerheads constitute 18–30% of shark fisheries off Australia's east coast.	

Inclusion in Appendix II to improve control of other listed species

A) Specimens in trade resemble those of species listed in Appendix II under *Resolution Conf. 9.24 (Rev. CoP14)* Annex 2 a or listed in Appendix I

Four other species are proposed for inclusion based on look-alike issues:

Great Hammerheads *Spyrna mokarran*, Smooth Hammerheads *Sphyrna zygaena*, Dusky Sharks *Carcharhinus obscurus*, and Sandbar Sharks *Carcharhinus plumbeus* are proposed for inclusion because their fins are morphologically similar to Scalloped Hammerheads and difficult to distinguish in trade.

The larger triangular fins of hammerheads, Sandbar and Dusky Sharks are separated by traders from other carcharhinid fins, which are often lumped together. Traders in the Hong Kong fin market have separate categories for fins from Scalloped Hammerheads (Bai chun), Smooth Hammerheads (Gui chun), Great Hammerheads (Gu Pian) and a general category containing both Scalloped and Smooth Hammerheads (Chun chi) in an approximately 2:1 ratio respectively. Sandbar Sharks and Dusky Sharks also have their own market categories.

Together Scalloped, Great and Smooth Hammerhead fins account for nearly 6% of the identified fins in the Hong Kong shark fin market.

Catches of *S. lewini*, *S. mokarran*, and *S. zygaena* are often amalgamated.

Stock assessments in the North West Atlantic found that Sandbar Sharks have been depleted 64–71% from unexploited population levels. Current levels of exploitation of Sandbar Sharks in Western Australia have been determined as unsustainable.

A genetic analysis of fins in the Hong Kong market indicated that a relatively high proportion of samples (86–95%) for the five species in this proposal matched the hypothesized species based on traders' market categories (Clarke et al., *2006, see table below). Seven other categories containing various shark species were also identified accurately 60–100% of the time. Thus it seems that traders are able to distinguish between species in trade although there is still some mixing.*

Results of genetic analysis of shark fins by market category for five species in this proposal (Clarke* et al*., 2006).

Traders' market category	***Hypothesized major shark species within market category***	***% of sample confirmed as matching the hypothesized species***
Gu Pian	S. mokarran	*86*
Chun chi	S. zygaena *or* S. lewini	*95*
Bai qing	C. plumbeus	*63*
Hai hu	C. obscurus	*85*

A large volume of fins (over half by weight) traded in unstudied and often nonspecific categories could not be characterized in this study (Clarke et al.*, 2006), indicating that much of the trade consists of relatively indistinct fins.*

Although professional fin processors and traders may be able to sort visually many fins to species, this does not occur until late in the trade chain and certainly occurs after Customs would be officially required to identify fins to species (Sant, 2009).

Supporting Statement (SS)	Additional information
Shark nets deployed off beaches of ZwaZulu-Natal, on the south-western Indian Ocean coast of South Africa from 1978–2003, showed significant declines for Sandbar Sharks but not for Dusky Sharks.	*Dusky Sharks were estimated to contribute approximately 1.4% of the fins in the Hong Kong market, and were the least reliably identified in the study (Ibid).*
Multiple stock assessment models found Dusky Sharks in the North West Atlantic have declined by at least 80% with respect to virgin population levels. There are concerns for populations of this species due to declining neonate recruitment and unquantified catch of older sharks in non-target fisheries.	*Stock assessments show that populations of Great Hammerheads and Smooth Hammerheads in the North West Atlantic have declined by 96% and 91% between 1981 and 2005 (Hayes, 2007).*
Sandbar Sharks are commonly targeted in directed coastal gillnet and longline fisheries and occasionally caught as by-catch by pelagic longlines. Important Sandbar Shark fisheries are found in the western and eastern North Atlantic, and South China Sea. FAO catch statistics, reported primarily from the USA, peaked at 89 t in 1990 and has steadily declined since due to management restrictions.	*Several life history characteristics of Great Hammerheads contribute to their low productivity including: large body size (maximum recorded length 610 cm, Compagno 1984; common length 370 cm, Compagno, 1998), and long gestation (approximately 11 months, White* et al., *2006).*
Sandbar Sharks are targeted in Australia by a gillnet fishery (SW) and demersal longline shark fishery (NE). Annual catches in these fisheries more than doubled between 1994–5 and 2003–4 to over 400 t.	*Several life history characteristics of Smooth Hammerheads contribute to their low productivity including: large body size (maximum recorded size 500 cm, Muus and Nielsen, 1999; common length 335 cm, Compagno, 1998), and long gestation (10–11 months, White* et al.*, 2006).*
Sandbar Shark fins are highly valued among Hong Kong traders and are one of the more common species identified in the international fin trade.	*Sandbar Sharks are considered to be a low productivity species due to several life history characteristics including: large body size (maximum recorded length 250 cm, Nakaya, 1984; common length 200 cm, Frimodt, 1995), long life span (maximum reported age 32 years, Casey and Natanson, 1992), small litter size (1–14 pups, Randall* et al.*, 1990), long gestation (12 months, White* et al.*, 2006), and late age at maturity (13–16 years, various references from fishbase.org).*
Dusky Sharks and Sandbar Sharks both have low intrinsic rebound potentials and low productivity when compared to other sharks.	
Dusky Sharks are harvested in coastal shark fisheries in several parts of the world. They are also caught as by-catch in pelagic swordfish and tuna fisheries.	*Dusky Sharks are considered to be a low productivity species due to several life history characteristics including: large body size (maximum recorded length 420 cm, Compagno* et al., *1989; common length 250 cm, Sanches, 1991), late age at maturity (14–23 years, various references from fishbase.org), long life span (maximum reported age 40 years, Smith* et al., *1998), long gestation (approximately 16 months, White* et al.*, 2006), and small litter size (3–14 pups, Compagno, 1984).*
Juvenile Dusky Sharks have been the primary target of a demersal gillnet fishery in south-western Australian waters since at least the 1970s; annual catches increased rapidly from under 100 t to a peak of approximately 600 t in 1998–9 before management restrictions reduced and stabilized annual catches at approximately 300 t.	
Dusky Shark fins are highly valued among Hong Kong fin traders and are still documented in international trade.	
A PCR-based assay has been published for hammerheads, Dusky and Sandbar Sharks. DNA tests are also available to confirm species identification.	

Supporting Statement (SS)	Additional information
B) Compelling other reasons to ensure that effective control of trade in currently listed species is achieved	

Other information

Threats

The principal threat is from over-exploitation in target and by-catch fisheries, which catch adults, juveniles and neonates.

Conservation, management and legislation

Hammerhead sharks are listed in Annex I (Highly Migratory Species) of the UN Convention on the Law of the Sea (UNCLOS). Most Regional Fisheries Management Organizations (RMFOs) have implemented shark finning bans.

There are no known species-specific conservation or management measures in place for Hammerheads.

Scalloped Hammerheads are included in the Large Coastal Shark complex management unit in the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan in the USA, which includes commercial shark quotas and recreational retention limits. However, there are no management measures specific to this species in the USA or elsewhere.

The Spanish Ministry of Environment and Rural Affairs will prohibit the capture of Scalloped Hammerheads from 1 January 2010 by means of a Ministerial Order. This will apply to Spanish fishing fleets wherever they operate.

Shark fin export is prohibited from Ecuador, an attempt to stop illegal finning in the Galapagos.

There are shark finning bans in various fishing states including the European Union (EU), and nine RFMOs including the tuna commissions in the Atlantic (ICCAT), Eastern Pacific (IATTC), and Indian (IOTC) Oceans. These may help reduce harvesting of hammerheads for their fins alone and for Sandbar Sharks where they are captured.

Dusky Shark is a prohibited species (no commercial or recreational harvest) in the US EEZ of the Atlantic Ocean, Gulf of Mexico and Caribbean Sea. The same goes for Sandbar Sharks except for a small research fishery. Management measures exist

Shark fisheries are prohibited throughout the Exclusive Economic Zones (EEZs) of French Polynesia, Palau and the Maldives (in 2010).

Hammerheads are known to suffer high mortality from capture. Estimated on-line mortality of Scalloped Hammerheads in the North Atlantic was 91.4% (Morgan and Burgess, 2007). Therefore mandates for live release are not likely to be sufficient to offset captures to conserve hammerhead populations (Camhi et al*., 2009).*

The International Plan of Action (IPOA) for the Conservation and Management of Sharks urges all States with shark fisheries to implement conservation and management plans. In 2009, FAO reported that of 68 members responding to a questionnaire, 50% had conducted assessments as to whether a shark National Plan of Action (NPOA) was needed; 90% of those have gone on to develop and implement an NPOA (Lack and Sant, 2009). In 2009, the Pacific Islands Regional Plan of Action (RPOA) for sharks was announced (Lack and Meere, 2009).

There have been no assessments of the effectiveness of any NPOAs to date and no RFMO has yet adopted a regional plan of management for sharks (Lack, 2009).

In the Brazilian EEZ, shark finning is prohibited by law, but requires enforcement by government authorities (Kotas, 2009).

Supporting Statement (SS)	Additional information
for Sandbar Sharks in Australia and for Dusky Sharks in Western Australia and South Africa (e.g. recreational bag limit).	
Captive breeding/Artificial propagation	
None known.	
Other comments	
It will be important to develop guides for the meat/carcass and fins of Scalloped Hammerheads and the other look-alike shark species also proposed for inclusion. The entry into effect of the inclusions of Scalloped Hammerheads, Great Hammerheads, Dusky Sharks and Sandbar Sharks in Appendix II of CITES is proposed to be delayed by 18 months to enable Parties to resolve the related technical and administrative issues.	

Reviewers:
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