PROPOSAL FOR INCLUSION OF SPECIES ON THE APPENDICES OF THE CONVENTION ON THE CONSERVATION OF MIGRATORY SPECIES OF WILD ANIMALS

A. PROPOSAL: Inclusion of all populations of mako sharks, Genus *Isurus*, on Appendix II

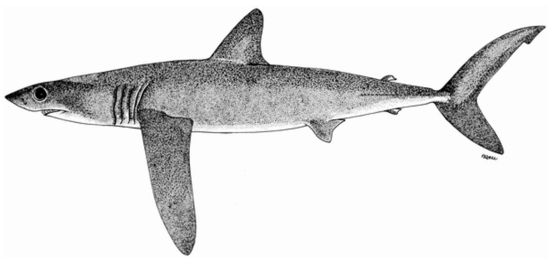
Summary: The shortfin and longfin mako sharks are warm-blooded, fast-swimming pelagic sharks that migrate through tropical and temperate seas worldwide. They have a low intrinsic rate of population increase and are exposed to high fishing mortality throughout their range. Their flesh is very valuable. They are targeted by oceanic, offshore and shelf fisheries, primarily in commercial long-line and hook and line fisheries, but also with net gear and to a lesser extent, as an important game fish, by recreational anglers. They are also a highly valued utilised bycatch of large-scale oceanic teleost fisheries, their meat and fins being marketed. Major declines in abundance of these species have been reported and they are listed as 'Vulnerable' by IUCN. Makos have been identified by fisheries management and biodiversity instruments as a high priority for regulation in order to reduce exploitation rates, but no such management has yet been implemented. A listing on Appendix II of CMS would provide additional support for introducing collaborative management of these species by Range States under the proposed CMS Migratory Sharks Instrument.

B. PROPONENT: Government of Croatia

C. SUPPORTING STATEMENT:

1. Taxon

1.1	**Classis**	Chondrichthyes, subclass Elasmobranchii
1.2	**Ordo**	Lamniformes, Mackerel sharks
1.3	**Familia**	Lamnidae
1.4	**Genus**	*Isurus* Rafinesque, 1810
	Species	*Isurus oxyrinchus* Rafinesque 1810; *Isurus paucus* Guitart, 1966
1.5	**Common name(s)**	English: Makos, mako sharks, Mackerel sharks. Shortfin and longfin mako French: Taupe bleu et petit taupe Spanish: Marrajo dientuso y marrajo carite Japan: Awozame-zoku



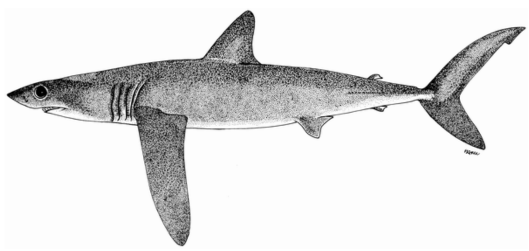


Figure 1a. Shortfin mako *Isurus oxyrinchus* **Figure 1b. Longfin mako *Isurus paucus***
Total length to ~4 m. Images from www.fao.org/fi

2. Biological data

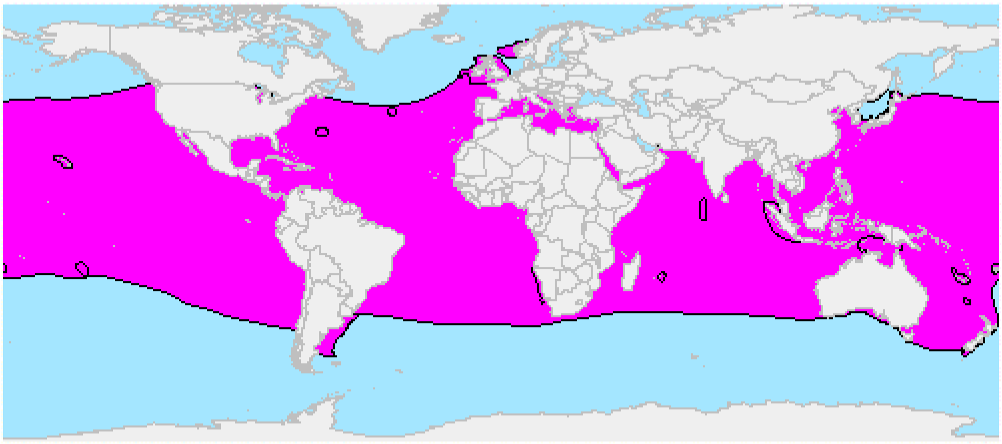
2.1 Distribution

Both species are probably circumglobal in tropical and warm temperate oceanic waters, although the longfin mako, a less common species, is not always accurately recorded in catches because it is often misidentified as shortfin mako or discarded at sea. Its reported distribution is, therefore, sporadic and not fully documented (Compagno 2001). The shortfin mako also occurs close inshore, particularly where the continental shelf is narrow, and in cooler temperate seas as well as in tropical areas, being distributed between about 50°N (up to 60°N in the Northeast Atlantic) to 50°S. It is not normally found in surface waters below 16°C (Compagno 2001).

Although there are many records from tagging programmes of transoceanic and transequatorial migrations, recent genetic research in the Atlantic suggests that the global distribution of shortfin mako is composed of several distinct populations. Shortfin mako sharks in the north and south Atlantic are genetically-distinct (Heist *et al.* 1996). Female makos from the eastern and western North Atlantic can be distinguished on the basis of their mitochondrial DNA, although a lack of differentiation in nuclear DNA suggests male mixing across the North Atlantic (Heist *et al.* 1996, Schrey and Heist 2003). The Atlantic and Indo-Pacific populations of longfin mako are possibly isolated, separated by cold waters off southern Africa and southern South America.

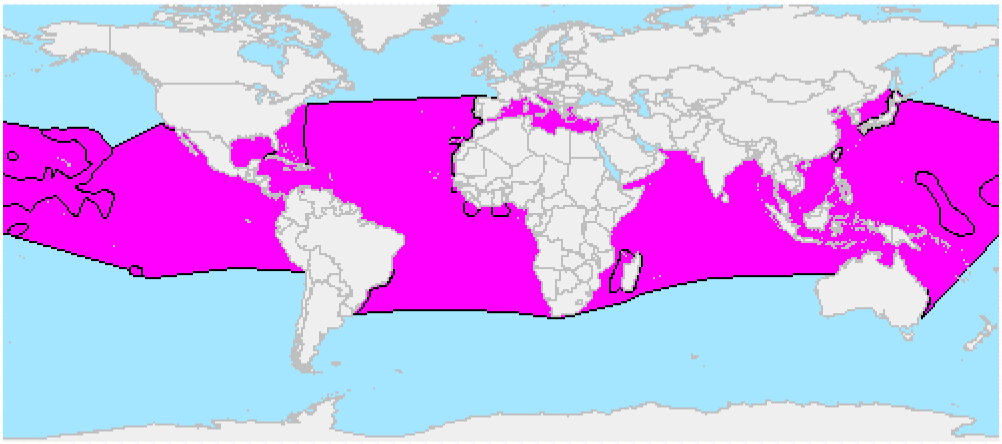
There appears to have been a reduction in the former range of shortfin mako in the Northeast Atlantic and Mediterranean; records are now extremely uncommon in some areas where it was formerly captured (Stevens et al. 2008). Longfin mako is apparently a much rarer species. It seems to be most common in the Western Atlantic and Central Pacific.

Figure 2a. Species distribution map for Shortfin mako (*Isurus oxyrinchus*)



FAO Areas: 21, 27, 31, 34, 37, 41, 47, 51, 57, 61, 67, 71, 77, 81 & 87. www.fao.org/figis

Figure 2b. Species distribution map for Longfin mako (*Isurus paucus*)



FAO Areas: 21, 27, 31, 34, 41, 47, 51, 57, 61, 71, 77 & 81. www.fao.org/figis

2.2 Population

There are no population estimates for either of the mako sharks. Their relative abundance compared with other oceanic shark species is provided by fisheries data. For example, shortfin mako contribute some 9.5% to 10% of the pelagic sharks caught by the Spanish longline fleets targeting sharks and swordfish in the Atlantic and Pacific Oceans (Mejuto et al. 2002, 2005, 2006, 2007). The longfin mako is vulnerable to bycatch in the same fisheries, but is significantly less abundant.

Fisheries data provide evidence of past and current population declines, for shortfin mako or for both species combined, in several areas. These are itemised in Stevens *et al*. 2008 and Reardon *et al*. 2006, and a few examples are presented below. These declining trends will continue in the absence of adequate management of the fisheries driving them.

In the North Atlantic, a 2004 ICCAT stock assessment workshop reported that shortfin mako stock depletions are likely to have occurred, based on catch per unit effort (CPUE) declines of 50% or more. ICCAT (2005) documented population declines of up to 70% in the North Atlantic Ocean. Demographic model results varied widely, with one approach suggesting present stock size is about 80% of virgin level, and another approach suggesting reductions to about 30% of virgin biomass in the 1950s (Cortés *et al*. 2007). In the Northwest Atlantic, analysis of CPUE from the US pelagic longline fishery logbooks reported that *Isurus* spp. may have declined by about 40% in the Northwest Atlantic between 1986-2000 (Baum *et al*. 2003). A more recent assessment of observer data for the same fishery found a similar instantaneous rate of decline of 38% between 1992-2005 (Baum *et al*. in prep.). A similar analysis of the same dataset and species grouping that restricted the areas of analysis to account for unbalanced observations, resulted in an overall decline of 48% from the beginning to the end of the time series (1992-2005) (Cortés *et al*. 2007). Off the Canadian coast, at the fringes of shortfin mako distribution, there was a decline in the large pelagic shark fishery during the 1970s and the median size of sharks caught has declined since 1988, possibly indicating a loss of larger sharks (Campana *et al*. 2005).

In the South Atlantic, the magnitude of decline is apparently smaller than in the North Atlantic and the stock size appears to lie above maximum sustainable yield, although only one modeling approach could be applied to the available data and assessments results were less certain than for the North Atlantic (Stevens *et al*. 2008). For both populations, a lack of data on life history and catches hamper these calculations. If historical catches were higher than estimated, the likelihood of the stock being below the biomass at MSY will surely increase (ICCAT 2005).

Shortfin mako was considered common throughout the Mediterranean at the beginning of the 20th Century, but is now absent in some regions including the Ligurian Sea (Boero & Carli 1979) and Eastern Adriatic (Soldo and Jardas 2002) and very rare in the central and eastern Mediterranean, presumably as a result of driftnet and longline captures during the past 50 years. Ferreti *et al*. (2008) identified a decline of over 96% in mako and four other large shark species in the western and central Mediterranean (Figure 3). It is now assessed as Critically Endangered here (Stevens *et al*. 2008).

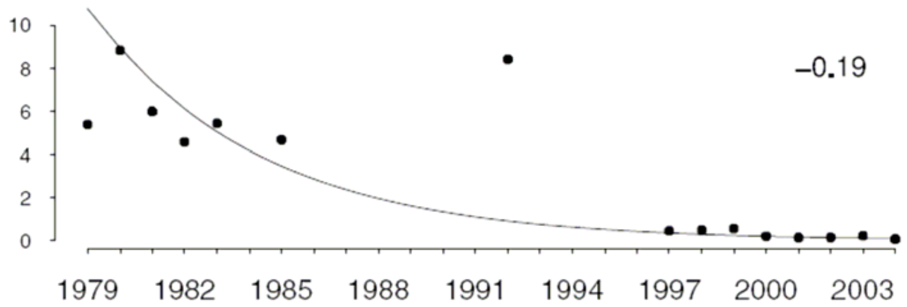


Figure 3. Trend in biomass per unit effort of shortfin mako (*Isurus oxyrinchus*) in the western and central Mediterranean Sea (from Ferreti *et al*. 2008).

Trend data are largely lacking from the Indo Pacific, but the pelagic longline fisheries that capture these species are also widespread and unregulated in these waters. Shortfin landings in Ecuador declined from a high of 2,000 t in 1994 to lows approaching 100 t in 2000 and 2001 (Herrera *et al*. in press). Sightings of mako sharks by anglers off the New Zealand coast and recapture rates of tagged makos have declined in the past decade, following peak years in 1995–1997 (Holdsworth and Saul 2008). Stevens *et al*. (2008) consider that it is reasonable to assume that decreases may be occurring in those areas for which there are limited or no data.

2.3 <u>Habitat</u>

The makos are primarily oceanic pelagic sharks, ranging widely in the enormous habitat of the oceans' upper pelagic waters, largely beyond the continental margins of the world. The shortfin mako also enters the littoral zone of shelf waters and can occur close to the coast where the coastal shelf is narrow. The shortfin mako is usually confined to waters warmer than 16^{o}C (on the surface) to depths of at least 500m. Tracking studies have found that regular dives are made into deep water during the day where the temperature is low as 10^{o}C (Holts and Kohin 2003). These are probably feeding dives (Sepulveda *et al*. 2004). There is very little information available on the location of mating, pupping or nursery grounds, although pregnant females, newborns and juveniles have regularly been reported from a few areas (summarized in Stevens *et al*. 2008). The longfin mako is also reported from the surface of the ocean but likely spends more time in deeper waters.

2.4 Migrations

Shortfin mako is one of the fastest swimming fishes in the sea and a highly migratory species. In addition to undertaking very long distance journeys across ocean basins, this species tends to follow movements of warm water masses polewards in the summer, in the extreme northern and southern parts of its range and moves between deep water over continental slopes and inshore areas, particularly where the shelf is narrow. Some of these migrations have been described from a combination of tracking, tagging and genetic studies.

One of the largest tagging studies was conducted by the National Marine Fisheries Service (USA) in the western Atlantic. This tagged 2459 shortfin mako during 1962–1989. Fishers from 16 countries reported 231 recaptures (9.4% of releases) of these tagged sharks. The maximum time at liberty was 8.2 years, and the maximum straight-line distance between tag and recapture localities is 2452 nautical miles. One tag was recovered from the European side of the Mid-Atlantic Ridge (Casey and Kohler 1992). The lack of differentiation in nuclear DNA suggests male mixing across the North Atlantic, although there appear to be separate female mako populations in the east and west (Heist *et al.* 1996, Schrey and Heist 2003).

Shortfin mako sharks have been tagged off the coast of New Zealand by sports anglers for many years. There have been 96 recaptures from outside New Zealand waters. The longest distance recorded was about 3000 nautical miles to the Marquesas Islands, and the longest duration at liberty was 6.5 years. Recaptures are clustered around Fiji (50 captures), New Caledonia, and the east coast of Australia (Queensland and New South Wales) (Holdsworth and Saul 2008). Off the Natal Kwa-Zulu coast of South Africa, makos move from offshore and inshore waters. Off the Californian coast, eight archival tags deployed for 2–4 months popped up from 20-911 km from their deployment locations (Holts and Kohin 2003).

No such data are available for the rarer longfin mako, but it is virtually certain to undertake similar long distance movements in pelagic waters. Compagno (2001) suggests that females of this species may approach land to pup.

3. Threat data

Threats to the mako sharks arise from the combination of their low productivity and consequently high intrinsic vulnerability to over-exploitation with the intensive and largely unregulated fisheries that cause them to suffer high fishing mortality throughout their range (Dulvy *et al*. 2008). Detailed information is available in Stevens *et al*. (2008) and Reardon *et al*. (2006) – the primary sources for the following information.

3.1 Direct threat to the population

The shortfin mako is targeted for its meat and fins by the large longline fishing fleets that operate in the Atlantic, Pacific and Indian Oceans. It makes up about 7% of total catches in the Atlantic swordfish fishery, about 5% of total catches in the rapidly expanding Pacific swordfish fishery, and about 10% by weight of all North Atlantic shark catches (Mejuto ops. cit.). It is an important catch in Indonesia’s tuna fisheries. It is also a target and utilized bycatch of other smaller-scale fisheries. The comparatively uncommon longfin mako is apparently not targeted for its meat, but its fins are very valuable and it is likely to be utilized rather than released when taken as bycatch.

These threats operate in all parts of the mako sharks' range and fisheries may target any age class of sharks present in the area. For example, early juveniles were the target of a drift longline fishery off California during the 1980s (Cailliet *et al.* 1993).

The shortfin mako is also a prized gamefish and targeted by sports anglers in many parts of the world, including USA, New Zealand and some European countries. Several sports fisheries are now primarily focused on tag and release rather than retention of the catch.

With the exception of finning bans (which prohibit the retention of shark fins and discard of shark carcasses), no fisheries regulations have been adopted for the sustainable management of the sharks that are targeted or taken as bycatch in these oceanic fisheries.

3.2 Habitat destruction

Habitat destruction is not currently of concern for these wide ranging warm water oceanic species, although ocean acidification resulting from rising global levels of CO_2 could have serious future implications for marine ecosystems.

3.3 Indirect threat

The chief indirect threat to these species is their high intrinsic vulnerability to over-exploitation in fisheries. These apex predators have few natural enemies in the marine environment. Their reproductive strategy comprises slow growth, late maturity, small litters of large pups and high longevity. Life history parameters are summarized in Table 1, taken from the IUCN Red List Assessments for the mako sharks. These parameters vary between ocean basins for the shortfin mako, but there are sufficient data to demonstrate the likely low intrinsic rate of population increase for this species. In contrast, very few demographic data are available for the much rarer longfin mako shark. However, this species grows to a larger size and its pups are born at a much larger size in smaller litters This implies that it has a lower fecundity and even lower ability to sustain fisheries.

Table 1. Life history parameters of the mako sharks genus *Isurus*

Life history parameter		Shortfin mako *Isurus oxyrinchus*	Longfin mako *Isurus paucus*
Age at maturity (years)	males:	7-9	Unknown
	females:	18-21	Unknown
Size at maturity (total length cm)	female:	265-280; 275-293, 301-307	>245cm TL (Compagno 2001)
	male:	195; 203-215, 198-204	Smallest reported mature male: 229cm TL (Castro in prep)
Longevity (years)		29-32	Unknown
Maximum size (total length cm)		296 (males); at least 394 (females)	At least 426.7cm TL (Castro in prep)
Size at birth (cm)		60-70	97-120 cm (Compagno 2001)
Average reproductive age (years)*		25.2 (E. Cortés unpubl. data)	Unknown
Gestation time (months)		15-18	Unknown
Reproductive periodicity		Every 3 years	Unknown
Litter size		4-25 (mean 12.75)	2-8 young in a litter (Castro *et al.* 1999, Compagno 2001)

Annual rate of population increase	e^r=1.068 (E. Cortés unpubl. data) r = .046 yr^{-1} (S. Smith pers. comm.)	Unknown
Natural mortality	0.065-0.100 yr^{-1} (E. Cortés unpubl. data)	Unknown

Sources cited in Stevens *et al*. 2008 and Reardon *et al*. 2006: Bishop *et al*. (2006), Pratt and Casey (1983), Cliff *et al*. (1990), Compagno (2001), Dulvy *et al*. (2008), Francis and Duffy (2005), Garrick (1967), Mollet *et al*. (2002), Natanson *et al*. (2006), Smith *et al*. (1998), Stevens (1983).

3.4 Threat connected especially with migrations

Because mako sharks regularly migrate between the EEZs of different range states and into the high seas, no part of any stock can benefit fully from any management measures that may be introduced within its waters by a single Range State. These measures will not apply to other fleets fishing the same stock in their EEZs or on the high seas, where shark fisheries are largely unregulated.

3.5 National and international utilisation

As already noted, the shortfin mako shark is utilized nationally and internationally for its meat. It is also utilized internationally for its fins, which enter the fin trade in large quantities. Clarke *et al*. 2006a estimated from a market study that the fins of between 500,000 and 1,000,000 individual mako sharks (biomass 25,000 to 40,000 tonnes) enter the shark fin trade worldwide each year. This is much higher than reported catches. Clarke *et al*. 2006b used genetic analysis of fins in trade to classify trader categories by species. They estimated that shortfin mako comprise about 2.7% of the total fin trade (not including shortfin mako fins that are classified with silky sharks by traders). Although longfin makos are much less abundant in catches and trade, this species was also identified regularly in fin markets, sometimes in a species-specific market classification and sometimes classified with shortfin mako or thresher shark fins.

4. Protection status and needs

4.1 National protection status

Shortfin mako:

South Africa: bycatch & recreational bag limit.

New Zealand: Managed under Quota management system.

Chile: gear regulations for artisanal fishery.

Atlantic US: Commercial quotas. Limited entry, time-area closures. Recreational bag limits.

Pacific US: Closure of targeted longline fishery. Recreational fishery bag limits in California. Harvest guidelines for California, Oregon and Washington.

Atlantic Canada: COSEWIC ‘At Risk’ species. Subject of catch and bycatch limits. License limits, gear restrictions, area and seasonal closures, recreational hook and release only.

Pacific Canada: Limited entry, time-area closures.

At least 19 countries, including many Range States, have adopted finning bans (Camhi *et al*. 2008), but these are unlikely to reduce mortality in this species because it is so highly valued for its meat as well as for fins.

Longfin mako:

South Africa: bycatch & recreational bag limit.

Prohibited Species on the US Highly Migratory Shark Fisheries Management Plan.

The number of States adopting National Shark Plans is also increasing and includes other range States, but no other species-specific management or species protection measures for mako sharks have been identified under these instruments.

4.2 International protection status

The mako sharks are listed on Annex I, Highly Migratory Species, of UNCLOS, in recognition of the importance of collaborative management for these sharks. No catch limits for any pelagic sharks have been adopted by the regional fisheries management organisations established to regulate high seas fisheries. Although the ICCAT Scientific Committee has recommended reducing fishing mortality on North Atlantic shortfin mako sharks, but this recommendation may not be implemented within the foreseeable future. The 2005 ICCAT shark stock assessment workshop has recommended improved research and monitoring of shortfin mako.

The makos may be benefiting from the finning bans that have now been introduced by nine of the tuna commissions (the regional fisheries management organizations for high seas pelagic fisheries), including in the Atlantic (ICCAT), Eastern Pacific (IATTC) and Indian Ocean (IOTC) (Camhi et al. 2008), but this is unlikely to reduce mortality for shortfin mako, because it is retained for its meat as well as its fins. Longfin mako could benefit from these measures if they result in the live release of bycatch.

The shortfin mako is listed under Annex III of the Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean and Appendix III of the Bern Convention on the Conservation of European Wildlife and Natural Habitats, which permit a certain level of exploitation if population levels allow (Bern) or require exploitation to be regulated (Barcelona); however these regulations have yet to be implemented (Serena, 2005).

4.3 Additional protection needs

The provisions of the listings on the Barcelona and Bern Conventions (these envisage regulation of exploitation to sustainable levels in Mediterranean and European waters), urgently need to be implemented, particularly for the Critically Endangered Mediterranean shortfin mako population.

The shortfin mako shark has been included by the CITES Animals Committee on a list of species that may require consideration for inclusion in the CITES Appendices, if their management and conservation status does not improve. The Animals Committee recommended to the 13th Conference of Parties to CITES in 2004 that range States pay particular attention to the management of fisheries and trade in these species, including undertaking reviews of their conservation and trade status. This recommendation was not implemented. In 2007, the Animals Committee again drew the attention of FAO, Parties and RFBs to these species so that they may be prioritized for more accurate recording in catches, landings and trade. These recommendations need to be implemented.

Dulvy *et al.* (2008) reached the following conclusions on management needs for the makos and other threatened pelagic sharks: “Overall, despite widespread acknowledgment and understanding of their intrinsic vulnerability to overexploitation and numerous commitments to conserve them, oceanic pelagic sharks and rays remain a low priority for resource managers and continue to be over-exploited. To improve the conservation status of these species and ensure they are exploited sustainably, fishery managers and other government officials have the ability to take immediate, decisive action at national, regional and international levels. These actions include: implementing and enforcing finning bans (requiring sharks to be landed with fins attached) and scientifically-based (or precautionary) catch limits. Effective conservation of pelagic sharks and rays will also require developing new management tools for their conservation.”

The proposed management actions and new management tools proposed by Dulvy *et al*. (2008) are reproduced in Table 2.

In particular, the mako sharks urgently require the introduction of collaborative sustainable science-based fisheries management measures by a much larger number of range States and particularly by those States whose fleets catch these species on the high seas. In order to obtain the data required for the development of scientific advice, it will be necessary to improve significantly species-specific data collection for catches and landings. Precautionary catch limits should be adopted until adequate scientific advice is available. Bycatch mitigation measures, to reduce discard mortality, could be highly valuable.

Since management measures introduced by a single range State are likely to be ineffective, because of the migratory nature of these species, these measures will only be effective if introduced by region or by entire ocean-basin. Unfortunately shark species are a low management priority for the Tuna Commissions, which have not yet adopted any catch or effort limits for sharks.

IUCN/CMS (2007) suggest that a CMS Appendix II listing could help to drive the improvements in regional management that mako sharks urgently require; for example by prompting improved synergies between environment and fisheries management authorities. Listing on CMS would also bring the makos within the scope of the proposed new CMS migratory sharks instrument.

Table 2. Proposed management actions that would contribute to rebuilding threatened populations of oceanic pelagic elasmobranchs and sustaining associated fisheries (from Table 4 in Dulvy *et al*. 2008)

Recommendations to fishing nations and Regional Fisheries Management Organizations:

I. implement, as a matter of priority, existing scientific advice for preventing overfishing, or to recover, pelagic shark populations (e.g. ICCAT Scientific Committee recommendation to reduce fishing mortality on North Atlantic shortfin mako sharks);
II. draft and implement Plans of Action pursuant to the IPOA-Sharks which include, wherever possible, binding, science-based management measures for pelagic sharks;
III. significantly improve observer coverage, monitoring, and enforcement in fisheries taking pelagic sharks;
IV. require the collection and accessibility of species-specific shark fisheries data;
V. conduct stock assessments for pelagic elasmobranchs;
VI. implement pelagic shark catch limits, ensuring these are precautionary where sustainable catches are scientifically uncertain;
VII. strengthen finning bans by requiring sharks to be landed with fins attached. Until then, ensure fin-to-carcass ratios do not exceed 5% of dressed weight (or 2% of whole weight) and standardize Regional Fisheries Management Organizations finning bans to specify ratios apply to dressed rather than whole weight;
VIII. promote research and gear modifications aimed at mitigating elasmobranch bycatch and discard mortality; and
IX. commence programmes to reduce and eventually eliminate overcapacity and associated subsidies in pelagic fisheries.

Recommendations to country governments:

I. ensure active membership in CITES, CMS, Regional Fisheries Management Organizations and other relevant international agreements;
II. adopt bilateral fishery management agreements for shared, pelagic elasmobranch stocks;
III. propose and work to secure pelagic shark management at Regional Fisheries Management Organizations;
IV. ensure full implementation and enforcement of CITES shark listings based on solid non-detriment findings, if trade in listed species is allowed;
V. collaborate on regional agreements for CMS-listed shark species;
VI. promote and support the advice of the CMS Scientific Council and the CITES Animals Committee with respect to sharks;
VII. propose and support the listing of additional threatened pelagic shark species under CMS and CITES; and
VIII. develop and promote options for new international and global conservation agreements for migratory sharks.

5. Range States

Shortfin mako *Isurus oxyrinchus*	**Longfin mako *Isurus paucus***
Parties to CMS: Algeria, Angola, Antigua and Barbuda, Argentina, Australia, Bangladesh, Benin, Cameroon, Chile, Congo, Cook Islands, Cyprus, Côte d'Ivoire, Croatia, Ecuador, Egypt, Eritrea, France (French Polynesia, Guadeloupe, Guyana, New Caledonia), Gambia, Ghana, Greece (East Aegean Is.; Kriti), Guinea, Guinea-Bissau, Honduras, India, Iran (Islamic Republic of), Ireland, Israel, Italy (Sardegna; Sicilia), Kenya, Liberia, Libyan Arab Jamahiriya, Madagascar, Morocco, New Zealand, Nigeria, Norway, Palau, Pakistan, Panama, Peru, Philippines, Portugal, Senegal, Somalia, South Africa, Spain (Baleares; Canary Is.), Sri Lanka, Tunisia, United Kingdom (Bermuda, British Virgin Islands, Gibraltar), United Republic of Tanzania, Uruguay, Yemen. Other range States: Bahamas, Barbados, Belize, Brazil, Brunei Darussalam, Cambodia, China, Colombia, Costa Rica, Cuba, Dominican Republic, El Salvador, Equatorial Guinea, Fiji, French Guiana, Gabon, Guatemala, Indonesia, Jamaica, Japan, Kiribati, Korea, Democratic People's Republic of, Korea, Republic of, Malaysia, Maldives, Marshall Islands, Mexico, Micronesia, Federated States of, Mozambique, Myanmar, Namibia, Nauru, Nicaragua, Northern Mariana Islands, Oman, Papua New Guinea, Pitcairn, Puerto Rico, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Montenegro, Russian Federation, Sierra Leone, Singapore, Sudan, Suriname, Taiwan, Province of China, Thailand, Timor-Leste, Tonga, Trinidad and Tobago, Turkey, Turks and Caicos Islands, Tuvalu, United States, Venezuela, Viet Nam, United States, Virgin Islands.	Probably circumtropical in oceanic waters, but recorded distribution sporadic and not fully documented (Compagno 2001). Parties to CMS: Australia, Cape Verde Islands, Ghana, Guinea-Bissau, Liberia, Madagascar, Mauritania, Morocco, Portugal, South Africa, Spain, probably other Mediterranean States. Other range States: Brazil, Cuba, Japan, Federated States of Micronesia, Nauru, Solomon Islands, Taiwan Province of China, United States.

6. Comments from Range States

7. Additional Remarks

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