Vulnerable Sharks in the Atlantic Ocean

The Need for International Management

November, 2011

Many shark species migrate great distances across our oceans, crossing various jurisdictional boundaries along the way. These sharks, like tunas and swordfish, call large swaths of the oceans home and their populations cannot be claimed or effectively managed by any one country.

The United Nations Convention on the Law of the Sea (UNCLOS), the primary international maritime treaty, establishes that fishing nations must cooperate to ensure the conservation of highly migratory species both within and beyond their exclusive economic zones, through appropriate international organizations.[1]

Because highly migratory species require international cooperation for effective management, Regional Fisheries Management Organizations (RFMOs) have been established to manage fisheries for these species with the goal of long-term sustainability.[2] In the Atlantic Ocean and adjacent seas, the International Commission for the Conservation of Atlantic Tunas (ICCAT) is the most relevant and appropriate international organization to manage highly migratory species, including sharks. Of the 48 Contracting Parties to ICCAT, 46 are signatories to UNCLOS and 43 have ratified it. As UNCLOS is a legally binding agreement, management of highly migratory shark species in the Atlantic should be a priority for ICCAT Contracting Parties.

Sharks are caught as bycatch in many ICCAT fisheries and are sometimes targeted by surface longline fleets, primarily for their valuable fins. Most Atlantic pelagic sharks have exceptionally limited biological productivity and can be overfished even at very low levels of fishing effort.

Blue Shark © Karin Leonard/Marine Photobank

Sharks Caught in Atlantic Ocean

ICCAT Contracting Parties are required to annually report catch data for each shark species caught in association with the fisheries ICCAT manages.[3] Of the 72 highly migratory shark species listed in UNCLOS as needing international management, 20 were reported caught to ICCAT in 2009, the most recent year for which data is available.[4] The population status of these species is dire. Of the 20 shark species reported caught in 2009, three quarters are classified as threatened with extinction in parts of the Atlantic Ocean, according to the International Union for Conservation of Nature (IUCN) Red List of Threatened Species.[5] ICCAT scientists also conducted an ecological risk assessment for 11 priority shark species in 2008 and ranked them based on their vulnerability to pelagic longline fisheries in the Atlantic Ocean.[6] These ecological risk assessments "demonstrated that most Atlantic pelagic sharks have exceptionally limited biological productivity and, as such, can be overfished even at very low levels of fishing mortality."[7]

According to 2009 ICCAT data, in total, 68,214 tonnes of highly migratory sharks were caught in ICCAT fisheries.[8] Based on the estimated average weight of each species, over 1.3 million highly migratory sharks were caught (Appendix 1). However, given that 24 Contracting Parties did not report any shark catches in 2009,[9] and that under reporting of shark catch data to the ICCAT Secretariat is an acknowledged problem,[10] this figure is a gross underestimate.

Gradual Progress Towards Shark Protection

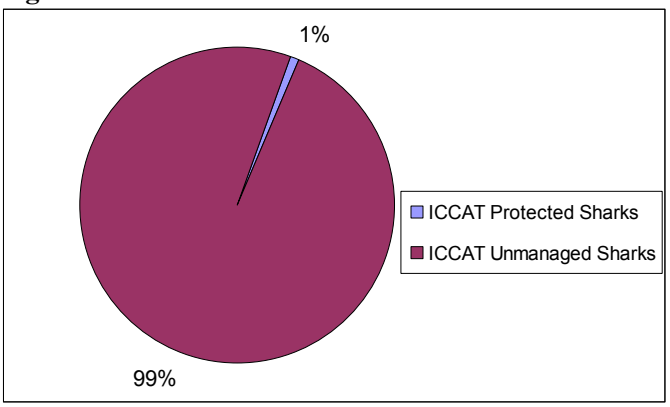
In 2004, ICCAT became the first RFMO to establish a legally binding shark finning measure, which requires that the weight of the fins does not exceed 5% of the weight of the carcasses onboard at the first point of landing.[11] However, this Recommendation contains weaknesses that limit its ability to effectively prohibit finning from occurring. For example, Contracting Parties are not required to land shark fins and bodies simultaneously. ICCAT also does not specify whether the 5% pertains to the live (whole) or dressed (gutted and beheaded) weight of sharks, allowing for different and sometimes conflicting interpretations of the rule across Contracting Parties. The current finning measure would be significantly improved by simply requiring sharks be landed with their fins still naturally attached.

In 2009, ICCAT Contracting Parties prohibited the retention, landing and sale of bigeye thresher sharks and advised against directed fisheries for other thresher shark species. This action was the first species-specific shark prohibition for any RFMO. In 2010, ICCAT Contracting Parties agreed to similar prohibitions for hammerheads (excluding bonnetheads) and oceanic whitetips, widening protection for vulnerable shark species caught in ICCAT fisheries.

Many Shark Species Still Unmanaged

While ICCAT has made some progress in shark management, the vast majority of sharks caught in ICCAT fisheries remain unmanaged. Of the 20 highly migratory shark species with catches reported to ICCAT, 15 have no ICCAT limits on how many can be caught. For the five that have limits currently in place, they are in the form of prohibitions on retaining the species if caught. There are still no actual ICCAT quotas for shark species. This means that of the 68,214 tonnes of highly migratory shark catches reported to ICCAT in 2009, the year the first species specific shark measure was adopted, less than 1% is composed of species that now have some ICCAT protection (Figure 1).

Figure 1: Percent of Annual Shark Catches with ICCAT Limits in Place [12]



Shockingly, the unmanaged species include porbeagle sharks, which the IUCN considers Critically Endangered in the Northeast Atlantic and silky sharks, which were recently determined to be the most vulnerable to longline fishing in the Atlantic.[13] The unmanaged species list also includes shortfin mako and blue sharks, which are the two species most frequently reported caught to ICCAT.

Figure 2: Vulnerability of Sharks to Atlantic Longline Fisheries[14] **and Species Protected Under ICCAT**

Species	Common name	Vulnerability	IUCN Red List status for ICCAT Areas
Carcharhinus falciformis	Silky shark	1	VU NW and W Central Atlantic; NT SW Atlantic
Isurus oxyrinchus	Shortfin mako	2, 3*	VU N and S Atlantic
Alopias superciliosus	Bigeye thresher	4	EN NW and W Central Atlantic; NT SW Atlantic
Carcharhinus longimanus	Oceanic whitetip shark	5	VU
Isurus paucus	Longfin mako	6	VU
Prionace glauca	Blue shark	7	NT
Sphyrna zygaena	Smooth hammerhead	8	VU; VU Med
Sphyrna lewini	Scalloped hammerhead	9	VU Eastern Central Atlantic and SW Atlantic; EN NW and W Central Atlantic
Lamna nasus	Porbeagle	10	CR NE Atlantic and Med; EN NW Atlantic
Alopias vulpinus	Common thresher	12	VU NW and W Central Atlantic and Mediterranean; NT NE Atlantic

*Shortfin mako vulnerability was calculated using 2 different estimates of productivity, thus resulting in 2 different ranks.
Species in Green are protected under ICCAT.
The IUCN Red List categories: CR: Critically Endangered, EN: Endangered, VU: Vulnerable**,** LR: Lower Risk, NT: Near Threatened, LC: Least Concern, DD: Data Deficient.

Due to the vulnerability of shark species, the high demand for their parts and their highly migratory behavior, it is vital that ICCAT assume its responsibility for their management and implement measures immediately to prohibit retention or develop catch limits. Porbeagle, silky and blue sharks, three of the species in most desperate need of ICCAT protection, illustrate the threats sharks are facing and why urgent action is needed.

Porbeagle sharks (*Lamna nasus*)

Porbeagle sharks prefer cold, pelagic waters and migrate seasonally.[15] They are slow-growing and have low reproductive potential, which makes them highly vulnerable to overexploitation. These sharks reach maturity between eight and 13 years of age[16] and can live as long as 46 years.[17] Porbeagles give birth to only about four pups per litter, which is low compared to other pelagic, migratory sharks.[18]

Porbeagle Shark, Lorient Fish Market, Brittany, France © OCEANA LX

The IUCN Red List considers porbeagle sharks Critically Endangered in the Mediterranean and Northeast Atlantic and endangered in the Northwest Atlantic.[19] In the Mediterranean, porbeagles are estimated to have declined by up to 99% since the mid-20th century.[20] In 2011, the ICCAT Standing Committee on Research and Statistics (SCRS) reported that the Northeast Atlantic stock is overfished and that overfishing may still be occurring.[21] Under current fishing conditions in the Northwest Atlantic, the porbeagle population is overfished and is expected to take from 30 to more than 100 years to recover. [22] Unfortunately, little is known about the impact of fishing on porbeagle sharks in the South Atlantic.[23]

Furthermore, uncertainty exists regarding the number of porbeagle sharks actually being caught. In 2009, 474 tonnes of porbeagle sharks were reported caught to ICCAT. However, data from the Food and Agriculture Organization of the United Nations (FAO) show 660 tonnes of porbeagle being caught in the Atlantic Ocean and adjacent seas in 2009 so not all porbeagles being caught in the ICCAT Convention area are being reported to ICCAT.

The vast majority of porbeagle sharks are caught in ICCAT waters; with 660 of the total 723 tonnes of global landings reported to the FAO occurring from the ICCAT Convention area. Despite global porbeagle landings reported to the FAO ranging between 613 and 818 tonnes from 2007-2009,[24] European trade data shows that EU nations imported 2,627.9 tonnes of porbeagle sharks in 2010.[25] While catch data is not yet available for 2010 to allow for a direct comparison, clearly there is a significantly higher level of porbeagle mortality occurring than accounted for in ICCAT and FAO records.

Given that the populations in both the Northeast and Northwest Atlantic are depleted, that uncertainty exists about how many porbeagle sharks are being caught and that in the face of uncertainty precaution should be exercised, ICCAT should prohibit retention, landing and sale of this species.

Silky sharks (*Carcharhinus falciformis*)

Silky sharks are taken incidentally in many fisheries and are also targeted for their valuable fins.[26] Like many shark species, silky sharks recover slowly from overfishing because of their biological characteristics; they grow slowly, live to an estimated 22 years or longer, and give birth to between six and 12 pups every one to two years.[27]

A recent ecological risk assessment of sharks ranked silky sharks as the most vulnerable species to Atlantic longline fisheries, due to their relatively low rate of productivity and high likelihood of capture and mortality in these fisheries.[28] The IUCN Red List considers silky sharks in the Northwest and Western Central Atlantic to be Vulnerable to extinction. One study of fishery logbook data estimated that the Northwest Atlantic population has declined by 50% since 1992.[29] Another study in the Gulf of Mexico estimated that the population has dropped by 91% since the 1950s.[30]

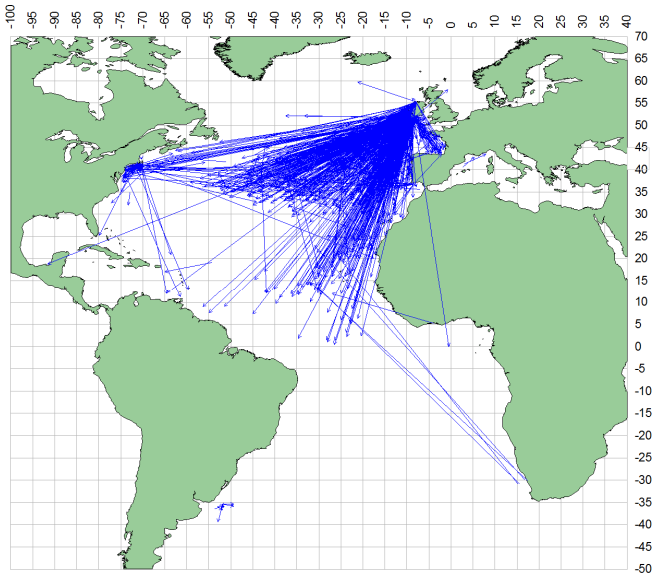
Silky Sharks, Manta, Ecuador. © OCEANA LX

In 2009, ICCAT Contracting Parties reported catching 69 tonnes of silky sharks, or an estimated 3,137 individuals. Because of the extreme vulnerability of this species, ICCAT should implement a ban on the retention, landing and sale of silky sharks.

Blue sharks (*Prionace glauca*)

Blue sharks are highly migratory and inhabit subtropical and temperate waters, usually in the open ocean. Tagging studies have shown blue sharks traveling long distances across the Atlantic Ocean, crossing multiple jurisdictional boundaries along the way (Figure 3).

Figure 3. Straight Displacement between Release and Recovery Locations of Tagged Blue Sharks[31]



Blue sharks are now caught in extremely high numbers as target species and desirable bycatch, and are an important commercial species in ICCAT fisheries. Valued for both their meat and fins, blue sharks are the most commonly traded shark species in the global fin trade.[32] In 2009, fishing nations reported to ICCAT that 58,823 tonnes of blue shark were caught in the Atlantic Ocean and adjacent seas, a quantity greater than catches of many of the ICCAT-managed species. Based on the tonnes reported caught, more than 1.1 million blue sharks are estimated to have been caught in the ICCAT convention area in 2009 without any international limit on catch.

Although blue sharks are not yet considered overfished, the IUCN Red List classifies the Mediterranean population as Vulnerable.[33] In addition, recent studies have shown declines in blue shark abundance, including significant declines in the Northwest Atlantic[34] and a decline of over 96% in the Mediterranean Sea.[35]

Blue Sharks in the Fresh Market in Vigo, Spain. © OCEANA LX

In ICCAT fisheries, blue sharks comprised approximately 88% of all reported highly migratory sharks (by number) caught in 2009. Blue shark catches in the Atlantic as reported to ICCAT and the FAO have increased in recent years (Figure 4). This upward trend differs from the downward trend seen for other Atlantic shark species (Figure 5) and thus likely indicates a real increase in catches rather than an increase in reporting of shark landings.

Figure 4. Reported Blue Sharks Catches in Atlantic as Reported to ICCAT and FAO[36]

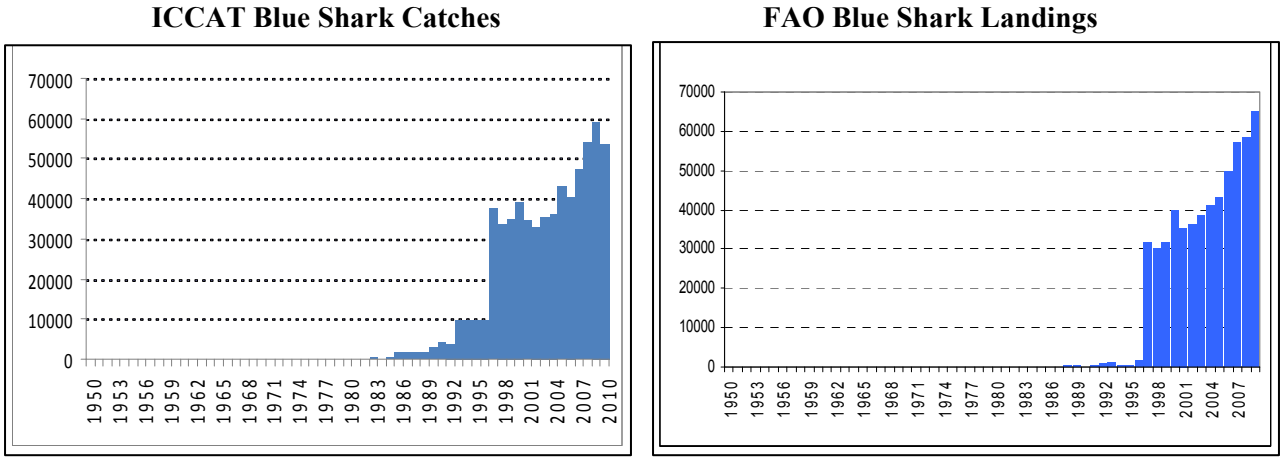
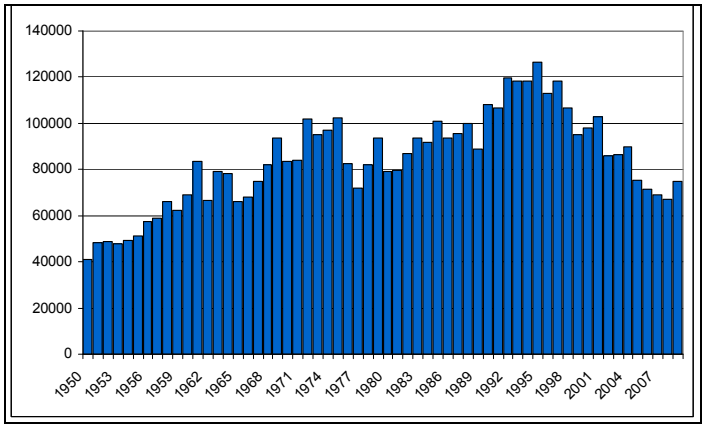


Figure 5. Reported Sharks Catches in Atlantic as Reported to FAO, Excluding Blue Sharks[37]



Due to the large and increasing number of blue sharks being caught and commercialized in ICCAT fisheries, ICCAT should adopt precautionary, science-based catch limits for this species to ensure sustainable populations in the future.

Better Data Needed

Shockingly, 50% of ICCAT Contracting Parties did not report any shark catches in 2009.[38] Misreporting of shark catch data to the ICCAT Secretariat is an acknowledged problem[39] and ICCAT parties have expressed confusion over shark catch reporting requirements.[40]

To help clarify ICCAT shark catch reporting requirements, the report from the 2008 ICCAT shark stock assessment meeting recommends "that data reporting procedures for the priority species identified by the SCRS be further specified and advertised" and that "data should be submitted for catches of the priority shark species, whether or not they are targets or bycatch, whether or not they are discarded, and regardless of whether the fleet is targeting tuna or tuna-like species."[41]

In 2009, a measure was adopted that prohibits ICCAT Parties from retaining shortfin mako sharks unless they are in compliance with data reporting requirements for this species.[42] ICCAT should build on this measure by putting in place similar requirements for other shark species.

Conclusions

While some progress has been made for sharks caught in ICCAT waters, ICCAT is a long way from protecting vulnerable shark species in the Atlantic, with less than 1% of the reported ICCAT shark catches now being managed with bans on retention. There continues to be no shark species with catch limits in ICCAT. In 2011, ICCAT should take the following actions to fulfill international commitments and ensure sustainable fisheries:

1. Prohibit retention of endangered or particularly vulnerable shark species, especially porbeagle and silky sharks.

2. Establish science-based precautionary catch limits for blue and shortfin mako sharks.

3. Require reporting of catch data as a prerequisite for landing a particular shark species.

4. Improve the ICCAT finning measure by requiring that sharks be landed with their fins wholly or partially attached in a natural manner.

Hammerhead Shark

Appendix 1: Highly Migratory Sharks Reported Caught in ICCAT Waters in 2009

Species	Common name	ICCAT reported catches (mt)	FAO Atlantic reported catches (mt)	Estimated number of sharks based on ICCAT data	Estimated number of sharks based on FAO data
Lamna nasus	Porbeagle	474	660	5,711	7,952
Alopias superciliosus	Bigeye thresher	133	95	1,343	960
Sphyrna mokarran	Great hammerhead	1	-	4	-
Sphyrna zygaena	Smooth hammerhead	17	120	362	2,553
Sphyrna lewini	Scalloped hammerhead	64	109	1,362	2,319
Sphyrna spp.	Hammerhead sharks	336	-	7,149	-
Isurus oxyrinchus	Shortfin mako	5,981	5,918	94,937	93,937
Carcharhinus longimanus	Oceanic whitetip shark	53	0	1,767	0
Carcharhinus falciformis	Silky shark	69	53	3,136	2,409
Isurus paucus	Longfin mako	108	16	1,543	229
Alopias vulpinus	Common thresher	147	117	1,205	959
Alopias pelagicus	Pelagic thresher	3	-	43	-
Alopias spp.	Thresher sharks	26	28	248	267
Carcharhinus limbatus	Blacktip shark	48	24	2,667	1,333
Carcharhinus signatus	Night shark	34	-	2,267	-
Prionace glauca	Blue shark	58,823	55,624	1,131,212	1,069,692
Galeocerdo cuvier	Tiger shark	67	63	609	573
Rhizoprionodon terraenovae	Atlantic sharpnose	370	159	51,034	21,931
Carcharhinus obscurus	Dusky shark	14	0.4	203	6
Carcharhinus plumbeus	Sandbar shark	22	0.4	73	1
Carcharhinus leucas	Bull shark	0	0.4	0	4
Hexanchus griseus	Bluntnose sixgill shark	11	29	550	1,450
Carcharhinus brachyurus	Copper shark	1	71	45	3,227
Carcharhiniformes	Ground sharks	1263	-	27,637	-
Lamnidae	Mackerel sharks	8	0	124	0
Carcharhinidae	Requiem sharks	141	9,352	3,085	204,639
Total		**68,214**	**72,439**	**1,338,315**	**1,414,440**

Table only includes species or taxonomic groups listed on UNCLOS Appendix 1 as highly migratory and have catches reported to ICCAT or FAO in 2009.

"-" not recorded in FAO database.

[1] United Nations, 1982. United Nations Convention on the Law of the Sea. Article 64.
[2] United Nations, 1982. The United Nations Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (in force as of 11 December 2001).
[3] ICCAT Recommendation 04-10. Recommendation by ICCAT Concerning the Conservation of Sharks Caught in Association with Fisheries Managed by ICCAT.
[4] 2009 Task-I catch data were used as 2010 catch reports to ICCAT were incomplete at the time of publication.
[5] Species qualifying as Vulnerable, Endangered or Critically endangered by the IUCN Red List are considered "Threatened with Extinction". http://www.iucn.org/about/work/programmes/species/red_list/about_the_red_list/
[6] SCRS/2008/017 – SHK Assessment.
[7] SCRS/2010/1 – Report for biennial period, 2010-2011, Part I (2010) – Vol. 2.
[8] ICCAT Task-I web statistical database. Catches 2009.
[9] ICCAT Task-I web statistical database was used to determine which Contracting Parties did not report shark catches for 2009. They are: Albania, Algeria, Angola, Cape Vert, Croatia, Egypt, Gabon, Ghana, Guatemala, Guinée Conakry, Honduras, Libya, Mauritania, Nicaragua, Nigeria, Norway, Philippines, Republic of Korea, Russia, Sierra Leone, Syria, Tunisia, Turkey and Vanuatu.
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[21] Report of the Standing Committee on Research and Statistics (SCRS). Madrid, Spain, October 2011.
[22] Report of the Standing Committee on Research and Statistics (SCRS). Madrid, Spain, October 2011.
[23] Report of the Standing Committee on Research and Statistics (SCRS). Madrid, Spain, October 2011.
[24] FAO Fisheries Department, Fisheries Information, Data and Statistics Unit. FISHSTAT Plus. Version 2.3. 2000.
[25] Euroestacom. 2011. Instituto Español de Comercio Exterior (ICEX). http://euroestacom.icex.es
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[37] FAO data from FAO Fisheries Department, Fisheries Information, Data and Statistics Unit. FISHSTAT Plus. Version 2.3. 2000. The FAO shark graph includes all Selachimorpha sharks (i.e. not rajiformes) plus the sharks, rays, chimaeras nei category.
[38] ICCAT Task-I web statistical database was used to determine which Contracting Parties did not report shark catches for 2009.
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[40]Report of the 2008 shark stock assessments meeting. Madrid, Spain, 1-5 September, 2008. SCRS/2008/017.
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