

HAMMERHEAD SHARKS

Great hammerhead (*Sphyrna mokarran*), scalloped hammerhead (*Sphyrna lewini*), and smooth hammerhead (*Sphyrna zygaena*) proposed for Annex 3
Iconic species with range throughout the Caribbean



Overview

The status of hammerhead sharks is assessed by IUCN as Endangered for *S. mokarran* and *S. lewini* (both on a global scale and the Northwest and Western Central Atlantic subpopulation) and Vulnerable for *S. zygaena*. Hammerheads suffer high bycatch mortality coupled with fecundity conservative life history, and as a result are vulnerable to over-exploitation and population depletion. The scalloped hammerhead has among the lowest recovery potential when compared to other species of sharks and population growth rates determined for populations in the Pacific and Atlantic Ocean are low. Standardized catch rates from the U.S. pelagic longline fishery show declines in *Sphyrnidae* spp. of 89% between 1986 and 2000 and declines of 76% between 1992 and 2005 in the northwestern Atlantic, including the Caribbean. Hammerheads were found to make regular movements across state boundaries. These findings highlight the need for cooperation between jurisdictions to ensure great hammerheads receive necessary protection throughout their migrations. The hammerheads are thus eligible for listing under SPAW Annex 3 under criterion 1, 4, 5 and 6.

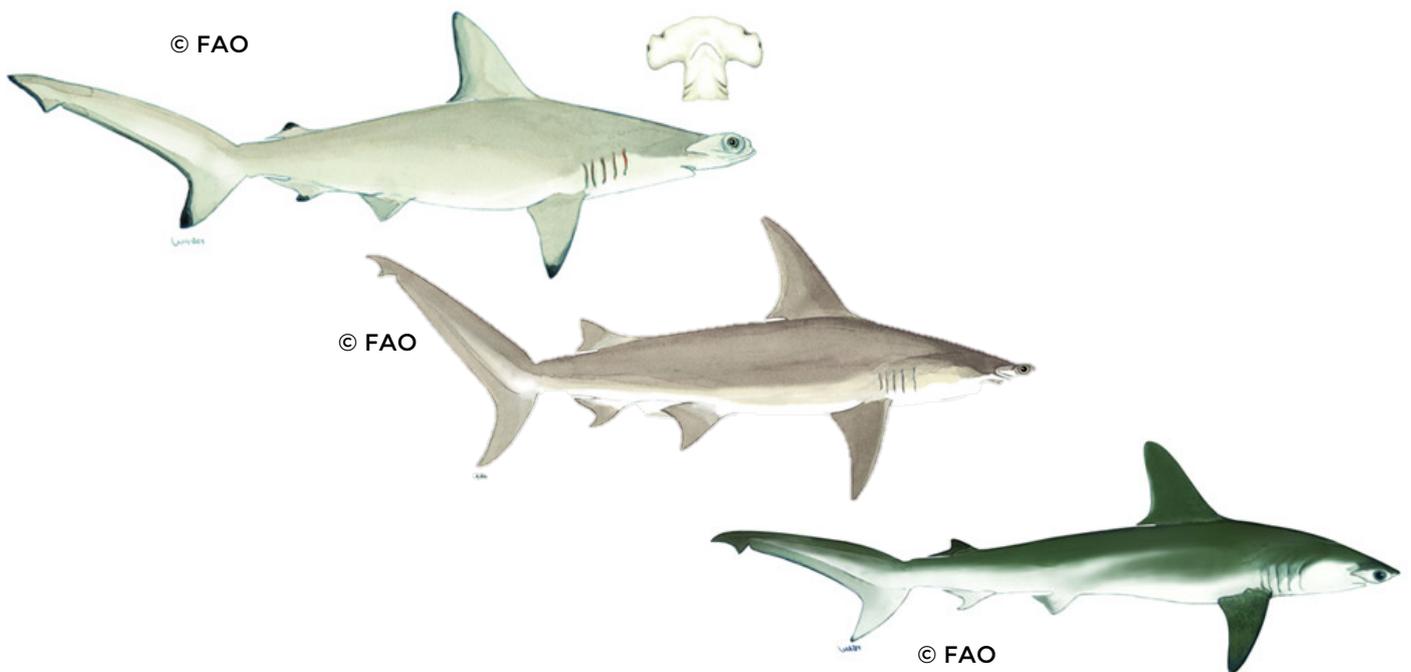
- Exceptionally slow-growing and vulnerable to overfishing
- Heavily exploited to satisfy international demand for their parts
- Prized for their fins
- Sensitive to catch and release practices
- Considered “Endangered” in the Western Central Atlantic
- Listed on Appendix II of CITES and CMS MoU sharks

Biology and distribution

Hammerhead sharks are circumglobal shark species residing in coastal warm temperate and tropical coastal seas. The great hammerhead is apparently nomadic and migratory, with some populations moving polewards in the summer, as off Florida and in the South China Sea. It inhabits deep waters, shallow lagoons and coral reefs. There is a pupping and nursery ground in a coastal mangrove estuarine area of southern Belize. *S. mokarran* is largely restricted to coastal and shelf habitats. Studies have revealed large-scale return migrations (>1800 miles), seasonal residency to local areas, site fidelity and numerous international movements in this species.

The scalloped hammerhead is wide ranging, but there is genetic evidence for multiple subpopulations. Recent studies indicate that the Northwest Atlantic, Caribbean Sea and Southwest Atlantic populations of this species are each genetically distinct from each other, and from the

Eastern Central Atlantic and Indo-Pacific populations. The boundaries between each population are not yet completely defined due to sampling constraints, but the "Caribbean Sea" population includes Belize and Panama and the "U.S. Gulf Of Mexico" sample covers from Texas to southwestern Florida, the boundary or transition zone will be in between Texas and Northern Belize. Scalloped hammerheads have among the lowest recovery potential when compared to other species of sharks. Population growth rates determined for populations in the Pacific and Atlantic Ocean are low ($r=0.08-0.10 \text{ yr}^{-1}$) and fall under the low productivity category ($r<0.14$) as defined by Food and Agriculture Organization of the United Nations (FAO). Although few data are available on the smooth hammerhead's life-history characteristics, it is a large hammerhead shark that is presumably at least as biologically vulnerable as *S. lewini*.



Population status

The statuses of *S. mokarran* and *S. lewini* are assessed by IUCN as Endangered (both on a global scale and the Northwest and Western Central Atlantic subpopulations) and for *S. zygaena* as Vulnerable. Hammerheads suffer high bycatch mortality coupled with a fecundity conservative life history, and as a result are vulnerable to over-exploitation and population depletion.

Protection of the hammerhead family is warranted by the proliferating evidence for declining populations in the West-Atlantic Ocean, their vulnerability to overexploitation and low recovery potential due to a low intrinsic growth rate and slow reproduction, and sustaining targeted catch and bycatch in the



Northwest and Western Central Atlantic ocean.

Abundance trend analyses of catch-rate data specific to *S. lewini* and to a hammerhead complex of *S. lewini*, including *S. mokarran* and *S. zygaena*, have reported large declines in abundance ranging from 60-99% over recent years. A stock assessment using information on catch, abundance trends and biology specific to *S. lewini* from the northwest Atlantic Ocean indicate a decline of 83% from 1981-2005. Standardized catch rates from the U.S. pelagic longline fishery show declines in *Sphyrnidae spp.* of 89% between 1986 and 2000 and declines of 76%

between 1992 and 2005 in the northwestern Atlantic, including the Caribbean.

Specific data on populations, and fishing pressure and the corresponding mortality rate of this species are generally unavailable in many areas because hammerhead shark catches are often grouped to include several *Sphyrna* species. Furthermore, smooth hammerhead has sometimes been confused with the scalloped hammerhead in the Caribbean and these two species are probably misidentified with each other more often.

Conservation action

There is a management plan in place in US waters, regulating catches from fishing and the scalloped hammerhead population has stabilized since the plan was put into place in 1994.

Hammerhead fins are highly valued and they are being increasingly targeted in some areas in response to increasing demand for shark fins. Hammerhead shark species *S. zygaena* and *S. lewini* were found to represent at least 4-5% of the fins auctioned in Hong Kong, the world's largest shark fin trading center. Fins from the Hong Kong market were genetically assessed and have been shown to originate from western Atlantic Ocean basins. The family of hammerheads is listed under Appendix II of CITES, which means the international trade in wild specimens or their parts is strictly regulated to avoid utilization incompatible with their survival.

Hammerheads are also listed on Appendix II of the Convention of Migratory Species, and in Annex I of the United Nations Convention on the Law of the Sea (UNCLOS) and should, therefore, be subject to its provisions concerning fisheries management in international waters.

