

## Great Hammerhead, *Sphyrna mokarran*

Report Card assessment	Depleted		
IUCN Red List Australian Assessment	Endangered	IUCN Red List Global Assessment	Critically Endangered
Assessors	Rigby, C.L., Barreto, R., Carlson, J., Fernando, D., Fordham, S., Francis, M.P., Herman, K., Jabado, R.W., Liu, K.M., Marshall, A., Pacoureau, N., Romanov, E., Sherley, R.B. & Winker, H.		
Australian Assessors	Kyne, P.M., Heupel, M.R., White, W.T. & Simpfendorfer, C.A. (Shark Action Plan)		
Report Card Remarks	In Australia, considered potentially at high risk; globally in decline. Listed on CITES Appendix II and CMS Appendix II.		

### Summary

The Great Hammerhead is a large, widely distributed tropical shark. The species is highly valued for its fins and is taken in a large range of coastal fisheries. It has very high bycatch mortality and only reproduces once every two years, making it vulnerable to over-exploitation and population depletion. In Australia, demonstrated declines in hammerhead populations, genetic links and connectivity with Indonesian populations, intense fishing pressure in Indonesian waters and potentially IUU fishing



all contribute to declines in the Australian stock. Risk assessments of northern Australian elasmobranchs indicate that Great Hammerhead may be 'high-risk'. Further study is urgently required to more fully determine the status of Great Hammerhead in Australia. Given its vulnerability to depletion, low survival at capture and high value for the fin trade, the species is assessed as globally Critically Endangered (IUCN). In Australia, the species is assessed as Endangered (IUCN) (Kyne et al. 2021) and Depleted (SAFS). The species is listed on CITES Appendix II and CMS Appendix II (Australian reservation).

### Distribution

The Great Hammerhead ranges widely throughout the tropical and warm temperate waters of the world (Last and Stevens 2009). In Australia, it occurs from Sydney (New South Wales) across the tropics to Mandurah (Western Australia) (Last and Stevens 2009).

### Stock structure and status

Little is known about the population size and trend of the Great Hammerhead. Generally regarded as solitary, the species is therefore unlikely to be abundant wherever it occurs. The closely related and similarly distributed Scalloped Hammerhead (*Sphyrna lewini*) shows genetic structuring between ocean basins with little structuring evident within basins (Duncan et al. 2006). Scalloped Hammerhead populations in Australia and Indonesia cannot be differentiated genetically suggesting they are the same stock (Ovenden et al. 2009, 2011). Genetic connectivity between Australia and Indonesia is also likely for the Great Hammerhead, given its potential for greater pelagic movement.

## Fisheries

The Great Hammerhead dorsal fin is particularly large and highly valued and the species is taken by target and bycatch fisheries (Dudley and Simpfendorfer 2006, Zeeberg et al. 2006). It is regularly caught in the tropics with longlines, fixed bottom nets, hook-and-line, and possibly with pelagic and bottom trawls. In Australia, there was a directed shark fishery operated by Taiwan around the northern coast of Australia that regularly caught Great Hammerheads up until 1986 (Stevens and Lyle 1989). Illegal, unregulated and unreported (IUU) fishing has been significant in northern Australia. Increased foreign fishing was observed between 2001 and 2005 with Indonesian vessels joining Chinese and Taiwanese fleets exploiting this region (Field et al. 2009). Small scale vessels were estimated to have harvested between 300 and 1,100 tonnes of shark in 2006 (Marshall 2011). Industrial scale Taiwanese boats were estimated to have harvested up to 100 times that amount. There has been a decline since 2006 in IUU fishing in northern Australian waters (Field et al. 2009, Haward and Bergin 2016), however it is still likely to occur. The Great Hammerhead is also presumed taken in multiple fisheries including gillnet, trawl, line fisheries although little species-specific data are available. This includes the Queensland East Coast Inshore Finfish Fishery (ECIFF) and Gulf of Carpentaria Inshore Finfish Fishery (GOCIFF), and Northern Territory Offshore Net and Line fishery. Recent Ecological Risk assessments for the Northern Territory ONLF (NT Fisheries 2020) and Queensland ECIFF (Jacobsen et al. 2021) give this species a Medium, and High risk rating, respectively. This suggests the risk of overfishing the species in these fisheries needs to be carefully managed. All fisheries in which the species are taken have management measures in place to address these risks, with catch limits, gear restrictions, and no-retention provisions (in the Northern Prawn Fishery). Other threats include sport fishing (Pepperell 1992) and capture in shark control programs in New South Wales and Queensland. Declines within Australian populations have been reported for Scalloped Hammerhead populations on both the east and west coast and declines are also presumed for Great Hammerhead although direct data are lacking. Fishing in neighbouring countries may also have implications for Great Hammerhead in Australia, given it is likely to be a shared stock. Indonesia is one of the world's largest fishers of sharks with annual catch rates estimated at 110,000 tonnes, although there is growing evidence that the catch rates are declining (White et al. 2006, Blaber et al. 2009, Lack and Sant 2009). As localised depletions become apparent, fishers are moving to exploit new areas (White and Kyne 2010). Intense fishing pressure in southeast Asia has led to significant depletions in coastal fisheries resources that includes sharks (Stobutzki et al. 2006).

## Habitat and biology

The Great Hammerhead is a coastal-pelagic and semi-oceanic species that occurs close inshore and well offshore at depths ranging from near surface to over 80 m (Compagno 1984). Maximum size is 550–610 cm total length (TL), though 400 cm TL is more common for a mature adult (Compagno 1984, Last and Stevens 2009). Maximum age is estimated at 39 years (Harry et al. 2011). Males mature at approximately 228–269 cm TL and females mature at 228–300 cm TL (Compagno 1984).

with both sexes mature at 8 years (Harry et al. 2011). Litter size range from 6–42 pups (Last and Stevens 2009) and females breed once every two years (Stevens and Lyle 1989).

Longevity and maximum size	Longevity: estimated 39 years Max size: 550–610 cm TL
Age and/or size at maturity (50%)	Males: 8 years, 228–269 cm TL Females: 8 years, 228–300 cm TL

**CAAB Code:** 37 019002

**Link to IUCN Page:** <https://www.iucnredlist.org/species/39386/2920499>

**Link to page at Shark References:** <http://www.shark-references.com/species/view/Sphyrna-mokarran>

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