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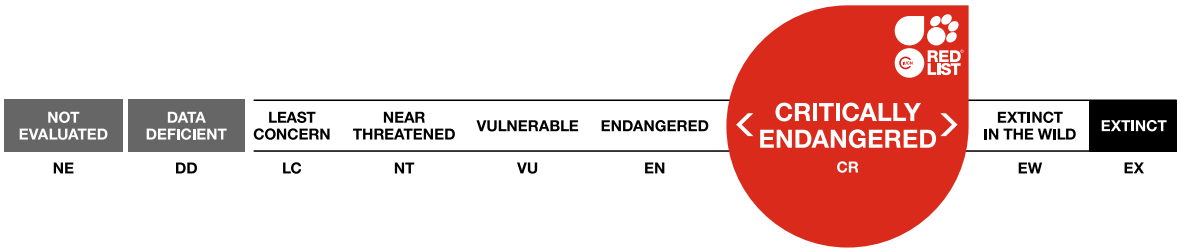
Sphyrna tudes, Smalleye Hammerhead

Assessment by: Pollom, R. *et al.*



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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Chondrichthyes	Carcharhiniformes	Sphyrnidae

Scientific Name: *Sphyrna tudes* (Valenciennes, 1822)

Synonym(s):

- *Sphyrna bigelowi* Springer, 1944
- *Zygaena tudes* Valenciennes, 1822

Common Name(s):

- English: Smalleye Hammerhead, Golden Hammerhead
- French: Requin-marteau À Petits Yeux
- Spanish; Castilian: Cornuda Ojichica
- Portuguese: Caranguejeira, Pana Amarela

Taxonomic Source(s):

Fricke, R., Eschmeyer, W.N. and Van der Laan, R. (eds). 2020. Eschmeyer's Catalog of Fishes: genera, species, references. Updated 14 September 2020. Available at: http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp.

Assessment Information

Red List Category & Criteria: Critically Endangered A2bd ver 3.1

Year Published: 2020

Date Assessed: July 1, 2019

Justification:

The Smalleye Hammerhead (*Sphyrna tudes*) is a medium-sized (to 150 cm total length) shark that occurs in the Western Central and Southwest Atlantic from Colombia to the Rio de La Plata, Argentina. It inhabits inshore waters over the continental shelf at depths of 5–80 m. It is captured in intense and largely unmanaged commercial and artisanal beach seines, gillnets, longlines, and trawls throughout its geographic range. This shark is targeted or retained as bycatch for its meat, which is consumed or sold locally. There are few data on population reduction but these intensive unmanaged fisheries are suspected to have caused reductions and possibly local extinctions throughout this species' range. For example, in Brazil, this hammerhead has not been recorded in 35 years from Ceará state and it is considered by local fishers to be depleted in Bahia state. This shark is supposed to be strictly protected in Brazil, but it is clear that it is still landed and traded in various states. Overall, due to intense and largely unmanaged fisheries across its range, lack of refuge at depth, suspected declines in many areas and local extinctions suspected from an absence of records (despite continued sampling and observation), and its relatively unproductive life history, it is suspected that the Smalleye Hammerhead has undergone a population reduction of >80% over the past three generations (37 years), and it is assessed as Critically Endangered A2bd.

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Previously Published Red List Assessments

2006 – Vulnerable (VU)
https://dx.doi.org/10.2305/IUCN.UK.2006.RLTS.T60202A12318061.en

Geographic Range

Range Description:

The Smalleye Hammerhead occurs in the Western Central and Southwest Atlantic from Colombia to the Rio de La Plata, Buenos Aires Province, Argentina (Ebert *et al.* 2013, Mejía-Falla and Navia 2019). Historical records from the Mediterranean (Tortonese 1951, McEachran and Séret 1987) are erroneous and refer to specimens of the Scalloped Hammerhead (*Sphyrna lewini*).

Country Occurrence:

Native, Extant (resident): Argentina; Aruba; Bonaire, Sint Eustatius and Saba; Brazil; Colombia; Curaçao; French Guiana; Grenada; Guyana; Suriname; Trinidad and Tobago; Uruguay; Venezuela, Bolivarian Republic of

FAO Marine Fishing Areas:

Native: Atlantic - southwest

Native: Atlantic - western central

Distribution Map

Legend

EXTANT (RESIDENT)

Compiled by:

IUCN SSC Shark Specialist Group 2018

The boundaries and names shown and the designations used on this map do not imply any official endorsement, acceptance or opinion by IUCN.

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Population

One study found very low haplotype diversity in this species' mitochondrial DNA, possibly indicating that the population is depleted due to fisheries exploitation in Pará and Amapá, Brazil (Tavares *et al.* 2013). There are few data on population reduction but there are intensive unmanaged fisheries that are suspected to have caused reductions and possibly local extinctions throughout this species' range. There are no data from Colombia, Venezuela or the Guianas, but this species is rarely recorded and intense unmanaged artisanal fishing pressure there is suspected to have caused population reduction. In Trinidad and Tobago, this species had already undergone a notable decline in landings in the inshore artisanal fishery there prior to 2006 (Shing 2006). In Brazil, this hammerhead has not been recorded in 35 years from Ceará state (V. Faria unpubl. data 2018), and this species is considered by local fishers to be depleted in the state of Bahia (Giglio *et al.* 2015, Giglio and Bornatowski 2016). There are intense and unmanaged artisanal fisheries in southern Brazil, which are suspected to have reduced the population substantially. There are no data for this species from Uruguay and Argentina, but there are important artisanal fisheries that are likely to be capturing this species and leading to a population reduction in the absence of management measures. Overall, due to intense and inadequately managed fisheries across its range, its lack of refuge at depth, noted declines in many areas and a lack of records in others, and its relatively unproductive life history, it is suspected that the Smalleye Hammerhead has undergone a population reduction of >80% over the past three generations (37 years).

Current Population Trend: Decreasing

Habitat and Ecology **(see Appendix for additional information)**

The Smalleye Hammerhead inhabits inshore waters over the continental shelf at depths of 5–80 m, and nursery grounds are found off shallow muddy beaches (Ebert *et al.* 2013, Weigmann 2016). It reaches a maximum size of 150 cm total length (TL); females reach maturity at 98 cm TL and males at 80 cm TL. Reproduction is placental viviparous, and females give birth after 10 months of gestation to 5–12 pups per litter that are 30 cm TL at birth (Ebert *et al.* 2013). Generation length is estimated to be 12.3 years, based on data available for the Bonnethead Shark (*Sphyrna tiburo*), which has a female age-at-maturity of 6.7 years and a maximum age of 17.9 years (Frazier *et al.* 2014).

Systems: Marine

Use and Trade

Hammerheads are among the main shark species in the fin trade and are among the preferred species for shark fin soup. Although other larger congeners are preferred in trade, it is likely that this species also enters the international market, as demand for smaller fins is increasing (Cardeñosa *et al.* 2019). The meat is likely consumed or sold locally, but may also be exported to Brazil where demand is rising (Dent and Clarke 2015). In Colombia, it is consumed by Indigenous communities (Puentes-Cañón *et al.* 2012).

Threats **(see Appendix for additional information)**

The Smalleye Hammerhead is captured in commercial and artisanal beach seines, gillnets, longlines, and trawls. Artisanal fisheries are intense across much of coastal Atlantic South America, and there are largely unmanaged commercial trawl and longline fisheries in many areas. In Caribbean Colombia,

artisanal fisheries are widespread and lack management, and there is also a shallow-water shrimp trawl fishery for which stocks have been significantly reduced. In the mid-2000s, this fishery had one of the highest ratios of bycatch relative to target species of any in the world (Duarte *et al.* 2010). Since 1995, artisanal fishers have reported decreased mesh sizes, the addition of hooks to gillnets, and spatial expansion of fisheries and subsequent increased fishing pressure on chondrichthyans (Marrugo *et al.* 2015). In Venezuela, commercial and artisanal fisheries are intense, unmanaged, and have exhibited the peaks in catches followed by declines indicative of sequential overfishing (Mendoza 2015). Industrial trawling for shrimp and demersal fish species was introduced in the 1940s and increased rapidly from the 1960s until the 1980s when there were 450 registered vessels (Mendoza 2015). Fishing intensity there increased for several decades and shrimp landings peaked at ~9,000 t in the 1990s (Manickchand-Heileman *et al.* 2004). Efforts to address over-exploitation and conflicts with artisanal fisheries led to a reduction to 260 vessels in 2006, and an industrial trawl ban went into effect in 2009 followed by a large increase in artisanal trawlers (Mendoza 2015). In Trinidad and Tobago, there were over 130 trawl vessels of various sizes operating off the west and south coasts of Trinidad by 2011 (Mohammed *et al.* 2011), and this species is known to have declined in the inshore artisanal fisheries there (Shing 2006). Groundfish fisheries on the Brazil-Guianas shelf were already fully over-exploited by 2000; these fisheries are multi-gear, multi-species, and multinational, with vessels crossing national maritime borders (Booth *et al.* 2001). Despite some areal closures and the implementation of a total allowable catch of target species, there is now a diminished effort and number of vessels in operation there (Diop *et al.* 2015). There are artisanal fisheries that partially target sharks in Guyana with gillnets and demersal longlines. There were ~600 artisanal vessels there in 1998, and these fisheries do capture this shark (Kolmann *et al.* 2017). The situation is suspected to be similar in Suriname and French Guiana.

In northwestern Brazil, artisanal fisheries pressure is high and 44% of target stocks were likely to be overfished by the end of the 2000s (Vasconcellos 2011). The combination of intense and unmanaged artisanal and commercial fishing in that area has led to the disappearance of several elasmobranch species in the region, including Largetooth Sawfish (*Pristis pristis*) and Daggernose Shark (*Isogomphodon oxyrhynchus*) (Reis-Filho 2016, Lessa 2016), and this species is known to be caught and traded there despite legal protection (Feitosa *et al.* 2018). In northeastern and eastern Brazil, artisanal fisheries are intense, gillnetting is the predominant artisanal gear, fishers there report that stocks are over-exploited, and the congener Bonnethead Shark has been depleted (Guebert-Bartholo 2011, Reis-Filho 2014). In southern Brazil, artisanal fisheries are intense and 58% of stocks targeted were over-exploited by 2010, half of those being collapsed (Vasconcellos 2011). In Uruguay, the industrial trawl fleet was developed in the late 1970s, and many target stocks were over-exploited by the 1990s (Defeo 2011). Artisanal vessels fishing in Uruguayan waters increased from 269 vessels in 1975 to 905 vessels in 1996, and after a restructuring in 1997, the number of vessels increased from 393 to 795 in 2010 (Lorenzo 2015). This is thought to be an underestimate as many artisanal vessels are not registered. In Argentina, there are gillnet fisheries that have been known to target sharks in the past (Chiaramonte 1998), and there are still gillnet fisheries that land sharks in the Rio del Plata (although this species was not recorded) (Jaureguizar 2015). Overall, this shark is caught in a large number of fisheries across its range, many of which are intense and unmanaged, and it has no refuge at depth.

Conservation Actions **(see Appendix for additional information)**

This shark is listed in the Brazilian Ordinance of the Ministry of the Environment No. 445, which restricts all harvest and trade of species listed as Endangered or Critically Endangered on the Brazilian National Red List (Feitosa *et al.* 2018, Lessa *et al.* 2018). This legislation came into force in December 2014,

however, it was suspended for all of 2015 and the first half of 2016 due to pressure from the fishing industry (Begossi *et al.* 2017). The ordinance faces increasing industry pressure, including a current court challenge to suspend the legislation again, by the Secretaria Nacional de Aquicultura e Pesca (SAP), who brought forward their contention that the Brazilian National Red List was designed specifically for terrestrial species (Spautz 2019). In Colombia, targeted industrial fishing of sharks and rays is prohibited, with set bycatch limits (up to 35% of bycatch in the national territory and up to 5% in the Archipelago of San Andres, Providencia, and Santa Catalina; Resolution 1743 of 2017); however, surveillance and compliance requires strengthening. To conserve the population and permit recovery, a suite of measures will be required which will need to include species protection, spatial management, bycatch mitigation, and harvest management, all of which will be dependent on effective enforcement. Further research is needed on life history and population size and trend, and species-specific monitoring should be undertaken in commercial and artisanal fisheries.

Credits

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Authority/Authorities:	IUCN SSC Shark Specialist Group (sharks and rays)

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Disclaimer

External Resources

For Supplementary Material, and for Images and External Links to Additional Information, please see the Red List website.

Appendix

Habitats

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Habitat	Season	Suitability	Major Importance?
9. Marine Neritic -> 9.1. Marine Neritic - Pelagic	Resident	Suitable	Yes
9. Marine Neritic -> 9.4. Marine Neritic - Subtidal Sandy	Resident	Suitable	Yes
9. Marine Neritic -> 9.5. Marine Neritic - Subtidal Sandy-Mud	Resident	Suitable	Yes
9. Marine Neritic -> 9.6. Marine Neritic - Subtidal Muddy	Resident	Suitable	Yes

Use and Trade

(http://www.iucnredlist.org/technical-documents/classification-schemes)

End Use	Local	National	International
Food - human	Yes	Yes	Yes

Threats

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Threat	Timing	Scope	Severity	Impact Score
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.1. Intentional use: (subsistence/small scale) [harvest]	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
	Stresses:	2. Species Stresses -> 2.1. Species mortality		
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.2. Intentional use: (large scale) [harvest]	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
	Stresses:	2. Species Stresses -> 2.1. Species mortality		
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.3. Unintentional effects: (subsistence/small scale) [harvest]	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
	Stresses:	2. Species Stresses -> 2.1. Species mortality		
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.4. Unintentional effects: (large scale) [harvest]	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
	Stresses:	2. Species Stresses -> 2.1. Species mortality		

Conservation Actions in Place

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Conservation Action in Place
In-place research and monitoring
Action Recovery Plan: No
Systematic monitoring scheme: No
In-place land/water protection
Conservation sites identified: No
Area based regional management plan: No
Occurs in at least one protected area: Yes
Invasive species control or prevention: Not Applicable
In-place species management
Harvest management plan: Yes
Successfully reintroduced or introduced benignly: No
Subject to ex-situ conservation: No
In-place education
Subject to recent education and awareness programmes: No
Included in international legislation: No
Subject to any international management / trade controls: No

Conservation Actions Needed

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Conservation Action Needed
1. Land/water protection -> 1.1. Site/area protection
3. Species management -> 3.1. Species management -> 3.1.1. Harvest management
3. Species management -> 3.1. Species management -> 3.1.2. Trade management
3. Species management -> 3.2. Species recovery
5. Law & policy -> 5.1. Legislation -> 5.1.2. National level
5. Law & policy -> 5.4. Compliance and enforcement -> 5.4.2. National level

Research Needed

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Research Needed
1. Research -> 1.2. Population size, distribution & trends

Research Needed
1. Research -> 1.3. Life history & ecology
1. Research -> 1.4. Harvest, use & livelihoods
2. Conservation Planning -> 2.1. Species Action/Recovery Plan
3. Monitoring -> 3.1. Population trends
3. Monitoring -> 3.2. Harvest level trends
3. Monitoring -> 3.3. Trade trends

Additional Data Fields

Distribution
Lower depth limit (m): 80
Upper depth limit (m): 5
Habitats and Ecology
Generation Length (years): 12.3

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The IUCN Red List Partnership

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The IUCN Red List Partners are: Arizona State University; BirdLife International; Botanic Gardens Conservation International; Conservation International; NatureServe; Royal Botanic Gardens, Kew; Sapienza University of Rome; Texas A&M University; and Zoological Society of London.