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Carcharhinus brevipinna, Spinner Shark

Assessment by: Rigby, C.L., Carlson, J., Smart, J.J., Pacoureau, N., Herman, K., Derrick, D. & Brown, E.

NOT EVALUATED	DATA DEFICIENT	LEAST CONCERN	NEAR THREATENED	VULNERABLE	ENDANGERED	CRITICALLY ENDANGERED	EXTINCT IN THE WILD	EXTINCT
NE	DD	LC	NT	VU	EN	CR	EW	EX

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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Chondrichthyes	Carcharhiniformes	Carcharhinidae

Scientific Name: *Carcharhinus brevipinna* (Müller & Henle, 1839)

Synonym(s):

- *Aprionodon caparti* Poll, 1951
- *Carcharhinus johnsoni* Smith, 1951
- *Carcharias brevipinna* Müller & Henle, 1839
- *Galeolomna fowleri* Whitley,1944
- *Isogomphodon maculipinnis* Poey, 1865
- *Longmania calamaria* Whitley, 1944
- *Uranga nasuta* Whitley, 1943

Infra-specific Taxa Assessed:

- Carcharhinus brevipinna Northwest Atlantic subpopulation

Common Name(s):

- English: Spinner Shark, Longnose Grey Shark
- Spanish; Castilian: Jaqueton
- Arabic: Jarjur Naudth

Taxonomic Source(s):

Fricke, R., W.N. Eschmeyer and R. Van der Laan (eds.). 2020. Eschmeyer's catalog of fishes: Genera, species, references. Available at: http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp. (Accessed: March 2020).

Assessment Information

Red List Category & Criteria: Vulnerable A2bd ver 3.1

Year Published: 2020

Date Assessed: February 11, 2020

Justification:

The Spinner Shark (*Carcharhinus brevipinna*) is a large (to 304 cm total length) shark that occurs in the Atlantic Ocean, Mediterranean Sea, and Indo-West Pacific Oceans. It is coastal and pelagic in warm temperate and tropical waters on continental shelves at depths of 0–200 m. The low biological productivity combined with its schooling behaviour and tendency to occur in inshore waters make it susceptible to fishing pressure, although if the pressure is on the juveniles only, it can be sustainable. The species is taken as target and bycatch of industrial, small-scale, and recreational fisheries using a range of gears, including trawl, longline, and gillnets. Over the past three generation lengths (38 years), the population is estimated to have increased in the Northwest and Western Central Atlantic in response to management measures and to have undergone a minor reduction of 3% in South Africa. It is suspected to have declined by >30% in the Arabian Seas region over the past three generation lengths (38 years) and is inferred to have also declined in the Mexican Atlantic, Southwest Indian Ocean, West Africa, and Southeast Asia. In Australia, it is captured in low numbers in managed fisheries and likely to be sustainably fished. The Spinner Shark has low biological productivity and although there is less fishing pressure and managed fisheries in some parts of its range, most of its range occurs in areas of intensive and unregulated fisheries. It is suspected that the Spinner Shark has undergone a population reduction of 30–49% over the past three generation lengths (38–59 years) due to exploitation, and it is assessed as Vulnerable A2bd.

Previously Published Red List Assessments

2009 – Near Threatened (NT)
https://dx.doi.org/10.2305/IUCN.UK.2009-2.RLTS.T39368A10182758.en

2000 – Lower Risk/near threatened (LR/NT)

Geographic Range

Range Description:

The Spinner Shark occurs in the Atlantic Ocean, Mediterranean Sea, and the Indo-West Pacific Oceans; it has not been recorded from the Northeast, Eastern Central, and Southeast Pacific Oceans (Ebert *et al*. 2013).

Country Occurrence:

Native, Extant (resident): Algeria; Angola; Australia; Bahamas; Benin; Brazil; Cabo Verde; Cameroon; China; Congo; Congo, The Democratic Republic of the; Cuba; Cyprus; Côte d'Ivoire; Djibouti; Egypt; Equatorial Guinea; Eritrea; Gabon; Gambia; Ghana; Gibraltar; Guinea; Guinea-Bissau; India; Indonesia; Iran, Islamic Republic of; Israel; Italy; Japan; Lebanon; Liberia; Libya; Madagascar; Malaysia; Mauritania; Mexico; Morocco; Mozambique; Nigeria; Oman; Pakistan; Papua New Guinea; Philippines; Saudi Arabia; Senegal; Seychelles; Sierra Leone; South Africa; Sri Lanka; Sudan; Syrian Arab Republic; Taiwan, Province of China; Thailand; Togo; Tunisia; Turkey; United Arab Emirates; United States; Uruguay; Viet Nam; Western Sahara; Yemen

Native, Possibly Extant: Bangladesh; Belize; Colombia; Costa Rica; French Guiana; Guatemala; Guyana; Honduras; Myanmar; Nicaragua; Panama; Suriname; Venezuela, Bolivarian Republic of

FAO Marine Fishing Areas:

Native: Pacific - northwest

Native: Atlantic - northwest

Native: Pacific - western central

Native: Atlantic - eastern central

Native: Pacific - southwest

Native: Indian Ocean - eastern

Native: Atlantic - southwest

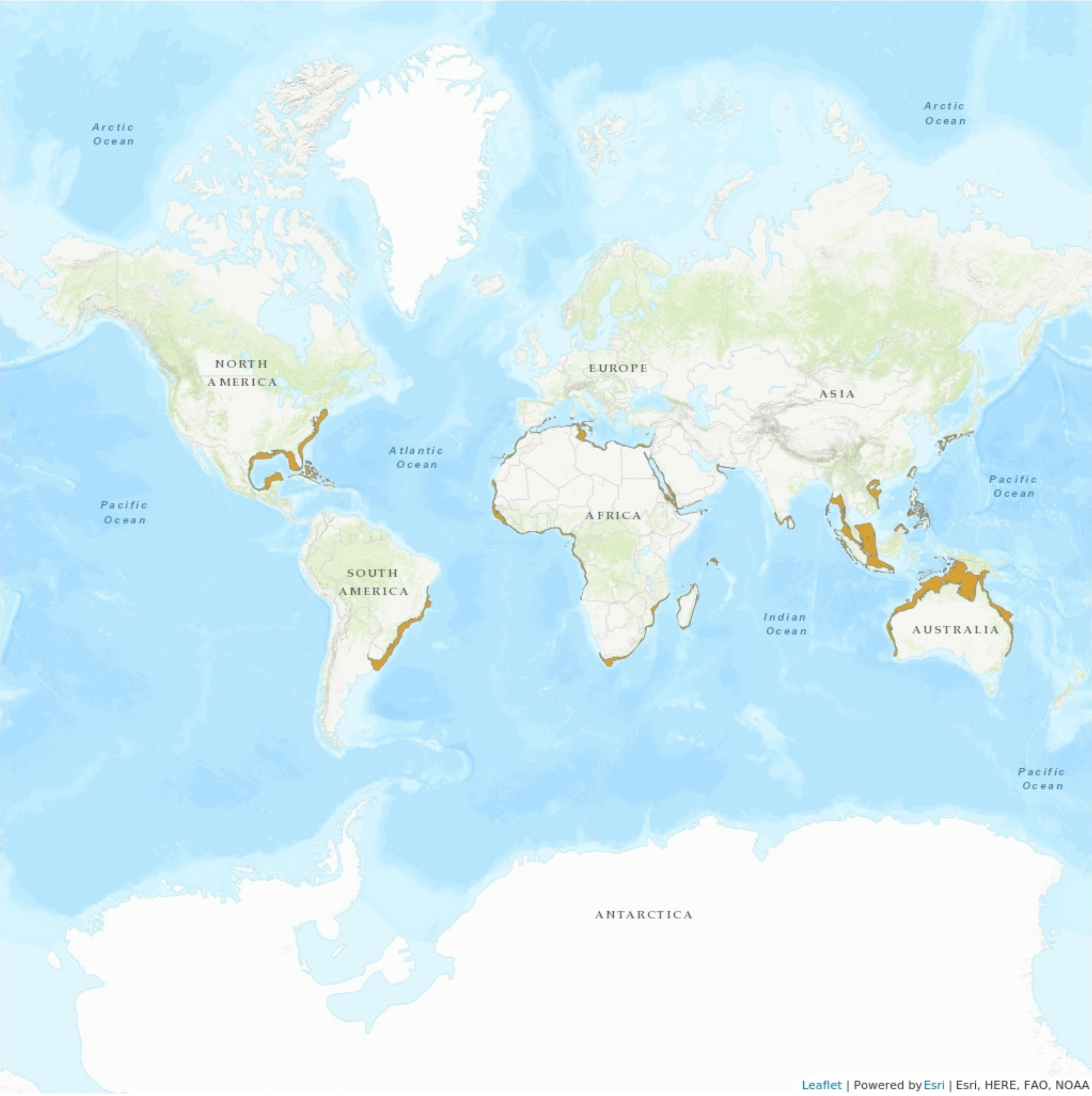
Native: Atlantic - southeast

Native: Atlantic - western central

Native: Mediterranean and Black Sea

Native: Indian Ocean - western

Distribution Map



Legend

EXTANT (RESIDENT)

Compiled by:

IUCN SSC Shark Specialist Group 2020

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

Population

Species-specific population trend data are available from two sources: (1) relative abundance in the Northwest and Western Central Atlantic (Peterson *et al.* 2017) and (2) catch-per-unit-effort (CPUE) in South Africa (M. Dicken pers. comm. 1/04/2019). The trend data from each source were analyzed over three generation lengths (38 years) using a Bayesian state-space framework (Sherley et al. 2020, Winker *et al.* 2020). This analysis yields an annual rate of change, a median change over three generation lengths, and the probability of the most likely IUCN Red List Category percent change over three generations (see the Supplementary Information). First, the abundance index in the Northwest and Central West Atlantic derived from fishery-independent surveys with trawl, longline, and gillnet showed an increase in relative abundance from the late 1990s to 2014. This has been associated with the enactment of the shark Fishery Management Plan in 1993 and is indicative of recovery of the Spinner Shark in the region (Peterson *et al.* 2017). It aligns with an earlier noted increase in relative abundance of 14% for the Spinner Shark in the commercial bottom longline fishery from 1994 to 2009 (Carlson *et al.* 2012). The trend analysis of the Northwest and Central West Atlantic relative biomass for 1996–2014 (19 years) revealed annual rates of increase of 8.5%, consistent with an estimated median increase over three generation lengths (38 years), with the highest probability of increases over three generation lengths.

Second, the South Africa nominal CPUE from the KwaZulu-Natal beach protection program fluctuated but was considered stable from 1978 to 2019 (M. Dicken pers. comm. 01/04/2019). The trend analysis of this CPUE for 1978–2019 (42 years) revealed annual rates of reduction of 0.2%, consistent with an estimated median reduction of 3.0% over three generation lengths (38 years), with the highest probability of <20% reduction over three generation lengths.

In the Mexican Atlantic, Spinner Shark were reported as being commonly seasonally caught in the earlier years of the fishery (1980–1998), followed by a decrease in catches likely as a result of intense fishing pressure (Martínez-Candelas *et al.* 2020). Due to the intense effort in the early years of the fishery and low biological productivity, the Spinner Shark is considered highly vulnerable to the Mexican shark fisheries (Martínez-Candelas *et al.* 2020).

In the Arabian Seas region, the Spinner Shark is suspected to have undergone a population reduction of >30% over three generation lengths (38 years) due to its large size, valuable fins, susceptibility to fisheries, and intensive fisheries (Jabado *et al.* 2017). There has been a significant increase in coastal fishing effort in some areas as well as a reduction in the number of shark catches, which suggests population declines have occurred (Spaet and Berumen 2015). For example, in Eritrea catch and effort data showed that total fishing effort increased more than two-fold from 1996 to 2002 with a concurrent reduction in the CPUE of all sharks of ~66% (Tsehaye *et al.* 2007). In the Red Sea, the number of traditional boats operating more than tripled from about 3,100 to 10,000 between 1988 and 2006 (Bruckner *et al.* 2011). Reports indicate that shark resources in the Red Sea, particularly off Sudan, Djibouti, and Yemen were already showing signs of depletion over 15 years ago (PERSGA 2002). In Pakistan, catches of Spinner Shark have declined by 40–50% over the past 20 years due mainly to a large fleet that targets demersal fishes (M. Khan, pers. comm. 3 June 2020).

In the Southwest Indian Ocean (SWIO), including Mozambique and Madagascar, small-scale fisheries are intense with elasmobranch landings increasing nine-fold from 1970 to 2013 and the Spinner Shark reported among the catches, although there are no species-specific trends and no SWIO-wide concurrent effort data (Temple *et al.* 2018). Depletion of inshore shark stocks across the SWIO region may be occurring as small-scale shark fishers have shifted towards fishing further offshore (Temple *et al.* 2018). In Madagascar, reconstructed shark catches indicate dramatic declines since the mid–1990s despite increases in estimated fishing pressure with these large declines also evidenced by diminishing returns for shark fishers (Le Manach *et al.* 2012, Cripps *et al.* 2015, Temple *et al.* 2018). In Mozambique, catches of small-scale fisheries, which account for 90% of the total catches and include targeted shark catches, have declined considerably in recent years, mainly due to overfishing and illegal fishing (Benkenstein *et al.* 2013). Shark catches in Sri Lanka decreased by 30% between 1994 and 1999 from 13,000 t to 9,000 t and have been steadily declining since 2001 despite increasing fishing effort (Dissanayake 2005). Furthermore, reports from India indicate that several shark stocks are either declining or have already collapsed (Mohamed and Veena 2016), likely as a result of increased fishing pressure. The number of trawlers operating in the Indian state of Gujarat (one of the major shark catching regions) has almost doubled between 2000 and 2010 from ~ 6,600–11,582 trawlers operating in the Indian state of Gujarat in the early 2000s (Zynudheen *et al.* 2004, CMFRI 2010).

In West Africa, all elasmobranchs are considered either fully exploited or overexploited due to intense and unregulated artisanal and industrial fishing pressure that includes targeted shark fishing, and the highest level globally of Illegal, Unreported and Unregulated (IUU) fishing (Diop and Dossa 2011, Doumbouya *et al.* 2017, R.W. Jabado, pers. comm. 4 April 2020). The reconstructed industrial and artisanal fishing catch-per-unit-effort (CPUE) for all fishes across the region has declined by 30% since 1950, driven by a strong decline in artisanal CPUE (Belhabib *et al.* 2018). In Mauritania, overfishing of sharks is reported, likely driven by the strong interest in the shark fin fishery from the 1980s onwards (Belhabib *et al.* 2012). In Senegal, recent stock assessments reveal heavy over-exploitation of coastal demersal fish stocks (Ba *et al.* 2018), and although there is no information on shark stocks, they are highly likely to be captured in these coastal fisheries and thus also likely subject to heavy exploitation levels. In Gambia, declines in shark fisheries have been reported from 2001 to 2011 with a recent study of an intensive shallow water demersal fishery reporting a dominance of batoids and the absence or rarity of previously common inshore elasmobranchs that raise concerns that some elasmobranchs have been severely depleted (Moore *et al.* 2019). In Southeast Asia, catches of many shark species are very high but are declining and fishers are travelling much further from port in order to increase catches (Chen 1996). For example, in Jakarta the gillnet fishery at Muara Baru travels to waters around Kalimantan due to the decline in local populations (W.T. White pers. comm. 25/8/2007). Net and trawl fisheries in Indonesia (especially the Java Sea) and elsewhere are very extensive and as a result, many shark and ray species are highly exploited and stocks of most species have declined by at least an order of magnitude (Blaber *et al.* 2009). While species-specific data on long-term declines in elasmobranchs in the Southeast Asian region are lacking, declines of the Spinner Shark in Southeast Asia and elsewhere in the Indo-West Pacific are inferred given the widespread historical and continuing declines of demersal fisheries in this region (Stobutzki *et al.* 2006).

In Australia, the standardized CPUE for catches of all whaler sharks (26 species which includes Spinner Shark) in the Queensland Shark Control Program (QSCP) has declined by 82% from 1962 to 2017 (Roff *et al.* 2018). This represents a reduction of 84% when scaled to three generation lengths of Spinner Shark

(59 years). The QSCP data is not species-specific, rather it is informative for understanding the potential levels of decline for the species in the region. Spinner Shark accounted for 2.3% of the total catch, with species identification reliable only from ~1996 onwards and it is unknown whether the decline in whaler shark catch rates represents an even decline across the 26 whaler species or a shift in species composition (Roff *et al.* 2018). Elsewhere in Australia, the effects of fishing on the Spinner Shark are limited, that is, in commercial fisheries in Queensland, the Northern Territory, and Western Australia, as most of the fishing effort is focused on the juvenile age classes and the species is estimated to be sustainably fished.

The Spinner Shark population is estimated to have increased in the Northwest and Western Central Atlantic, to have undergone a reduction of 3% in South Africa over the past three generation lengths (38 years), and to be sustainably fished in most of Australia. The increase in population is indicative of a recovery in response to management measures. In the Arabian Seas region, there are documented declines where it was previously targeted and is subject to intense and unregulated fishing pressure, and it is suspected to have undergone a >30% reduction over the past three generation lengths (38 years). Elsewhere, declines are suspected based on depletions of inshore shark stocks, declines in general shark catches, and overfishing of sharks. The Spinner Shark has low biological productivity and inferred high susceptibility to fisheries, and although there is lesser fishing pressure in some parts of its range where there are managed fisheries, most of its range occurs in areas of intensive and unregulated fisheries. Overall, it is suspected that this species has undergone a population reduction of 30–49% over the past three generation lengths (38–59 years).

For further information about this species, see Supplementary Material.

Current Population Trend: Decreasing

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

The Spinner Shark is coastal and pelagic in warm temperate and tropical waters on continental and insular shelves at depths of 0–200 m (Weigmann 2016). It is a highly migratory species that occurs more frequently in inshore rather than offshore waters and has nursery grounds in shallow, near-shore waters (Ebert *et al.* 2013). The species is often found in schools that may include large numbers of individuals. It reaches a maximum size of 304 cm total length (Weigmann 2016), males mature at 170–220 cm TL and females mature at 160–222 cm TL with regional variation in these parameters; smaller sizes-at-maturity are noted for the North Atlantic and Arabian Seas and the larger sizes-at-maturity for Australia, Taiwan, and South Africa (Branstetter 1987, Allen and Wintner 2002, Joung *et al.* 2005, Jabado and Ebert 2015, Geraghty *et al.* 2016). Reproduction is viviparous with a yolk-sac placenta and litter sizes of 3–15, a biennial reproductive cycle, and size-at-birth of 48–80 cm TL (Last and Stevens 2009, Jabado and Ebert 2015, Joung *et al.* 2005). In Australia, verified female age-at-maturity is 8.5 years and maximum age is 31 years, resulting in a generation length of 19.8 years (Geraghty *et al.* 2013, Geraghty *et al.* 2016). In the Gulf of Mexico, verified female age-at-maturity is 7.6 years with a maximum age of 17.5 years, resulting in a generation length of 12.6 years (Carlson and Baremore 2005). These Gulf of Mexico ages are similar to estimated ages in a previous Gulf of Mexico study and to ages estimated from South Africa (Branstetter 1987, Allen and Wintner 2002).

Systems: Marine

Use and Trade

The species is used for the meat, fins, liver oil, skin, and cartilage (White *et al.* 2006, Ebert *et al.* 2013). The meat is valuable and sold both fresh domestically and dried and exported. Spinner Shark fins accounted for 1.2% of fin samples in Hong Kong and 7.9% of the fins traded from United Arab Emirates (UAE) to Hong Kong; as UAE is a trading hub, the fins could have been sourced from across the Arabian Seas region and eastern Africa (Fields *et al.* 2018, R.W. Jabado pers. comm. 8/4/2020).

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

The Spinner Shark is caught globally as target and retained bycatch of industrial, small-scale, and recreational fisheries using a range of gears, including trawl, longline, and gillnet (Joung *et al.* 2005, McVean *et al.* 2006, Carlson and Bethea 2007, Geraghty *et al.* 2013, Jabado *et al.* 2015, Dharmadi *et al.* 2017). It is also taken in beach protection programs that target large sharks (Dudley and Simpfendorfer 2006, Roff *et al.* 2018). Under-reporting of the Spinner Shark is likely due to misidentification with the Blacktip Shark (*C. limbatus*) (Tillett *et al.* 2012, Ebert *et al.* 2013). At-vessel mortality (AVM) was estimated as 56% in a commercial prawn trawl fishery and 4–97% in commercial longline fisheries (Ellis *et al.* 2017, White *et al.* 2019). The longer soak times in the longline fisheries had a much higher AVM (Ellis *et al.* 2017).

In the Northwest Atlantic, the species is among a range of carcharhinids targeted by the commercial fishery along the southeast coast to the Gulf of Mexico. It is a common component of the commercial catch in the north-central Gulf of Mexico, but is less often caught in the fisheries along the eastern seaboard of the United States. It was ranked among the top seven coastal sharks at risk from the ICCAT longline fisheries based on productivity and susceptibility (Arrizabalaga *et al.* 2011). However, the species was only infrequently captured prior to 2010 with only 3 reported captures from 2010 to 2017 (ICCAT 2018). In the Mexican Atlantic, the Spinner Shark accounts for a small proportion of the total shark catch in the small-scale fishery catches. The small-scale fisheries in Mexico account for 97% of the country’s marine fleet and take most of the Mexican shark catch, which is substantial and places Mexico among the top 10 global shark catching countries (Pérez-Jiménez and Mendez-Loeza 2015, Oakes and Sant 2019). Spinner Shark represented 0.1–1.4% of the shark catch over three separate studies from 1993 to 2014, with the number of individuals captured in those studies varying from 808 in 1993–1994, to 30 in 2007–2010, and 37 in 2011–2014 (Castillo-Géniz et al. 1998, Castillo-Géniz 2001, Pérez-Jiménez and Mendez-Loeza 2015, Martínez-Candelas *et al.* 2020, Pérez-Jiménez *et al.* 2020). The species was reported as seasonally common in the early years of the fishery during 1980–1998 (Martínez-Candelas *et al.* 2020). Fishing effort on sharks peaked in 1980–1998 but a 35% reduction in shark catches from 1999 to 2008 led to a reduction in the shark fishing fleet and effort (Pérez-Jiménez and Mendez-Loeza 2015, Martínez-Candelas *et al.* 2020). It has been recorded as a small portion of small-scale fisheries catches in the Guatemala Caribbean (Hacohen-Domené *et al.* 2020). In the Mediterranean Sea, this shark was a significant bycatch of the pelagic longline fishery operating from eastern Algerian ports (Fowler *et al.* 2005). In West Africa, the demand for shark fin in the 1980s drove the development of artisanal targeted shark fishing across the region (Diop and Dossa 2011, Set0 *et al.* 2017, Moore *et al.* 2019). Spinner Shark are among the reported shark catches of West Africa, with the species among those caught in the highest numbers in Guinea-Bissau (Diop and Dossa 2011). By 2010, there were an estimated 252,000 unregulated artisanal and 3,300 industrial vessels (that mostly take shark as bycatch) operating in West Africa (Diop and Dossa 2011, Belhabib *et al.* 2018). In the Arabian Seas region, fisheries have experienced increased demand for sharks since the 1970s due to the shark fin trade and as a result, effort is increasing in traditional shark fisheries in many areas and likely has increased fishing pressure on this species (Bonfil 2003, Henderson *et al.* 2007, Jabado *et al.* 2015). In South Africa, the Spinner Shark is caught incidentally by pelagic longline, commercial and recreational line, prawn trawl fisheries, and the beach protection program. The estimated average annual catch was 1–10 t from 2010 to 2012 (Best *et al.* 2013, da Silva *et al.* 2015). In Mozambique and Madagascar, mostly unregulated small-scale fisheries that target sharks, including the Spinner Shark, are intense with 45,805 and 78,787 vessels, respectively operating in these countries in 2013 and 2012, respectively (Cripps *et al.* 2015, Temple *et al.* 2018).

In Southeast Asia, the catches of this species vary spatially and temporally across the region. It was among the top 10 species landed at some major fishing ports, such as Cilicap, Indonesia and infrequently recorded elsewhere (SEAFDEC 2016). In Indonesia and Papua New Guinea, this species is caught by longline, with juveniles a common catch of inshore gillnet fisheries in Indonesia (White *et al.* 2006, White *et al.* 2017, White *et al.* 2019). It was one of the most abundant species landed in eastern Indonesia from 2001 to 2006 (White 2007). The extensive loss and degradation of habitats such as coastal mangroves are also an indirect threat to coastal and inshore habitats of this species; Southeast Asia has seen an estimated 30% reduction in mangrove area since 1980 (FAO 2007, Polidoro *et al.* 2010). In Australia, the Spinner shark is caught in low levels as bycatch in Western Australian trawl fisheries, the Northern Prawn Fishery, and the Eastern Tuna and Billfish longline fishery (Patterson *et al.* 2018). It is also taken in east coast line fisheries, although it is frequently misidentified as either the Australian Blacktip Shark (*C. tilstoni*) or the Common Blacktip Shark (*C. limbatus*) (Harry *et al.* 2011, Sumpton *et al.* 2011, Tillet *et al.* 2012). In southeast Queensland, approximately 30% of the total catch is the Spinner Shark, all specimens of which were less than one year old (Gutteridge 2012). While this catch is considerable, the life history of the Spinner Shark indicates that it can sustain high levels of fishing mortality in the juvenile age classes as part of a gauntlet fishery, that is, a fishery that only catches sub-adults and minimizes mortality on the breeding stock (Simpfendorfer 1999, Prince 2005, Smart *et al.* 2020). Therefore, this level of fishing effort in southeast Queensland is suspected to be sustainable. However, heavy fishing pressure on the adult stock is suspected to lead to population declines (Simpfendorfer 1999, Prince 2005, Smart *et al.* 2020).

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

There are no species-specific conservation measures in place for Spinner Shark. To prevent future overfishing, it is recommended that Spinner Sharks be subject to regional and national catch limits based on scientific advice and/or the precautionary approach, as well as improved reporting of catch and discard data, and efforts to minimize bycatch mortality.

Credits

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

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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

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: Unknown
Invasive species control or prevention: Not Applicable
In-place species management
Harvest management plan: No
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
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
2. Conservation Planning -> 2.1. Species Action/Recovery Plan
3. Monitoring -> 3.1. Population trends

Research Needed
3. Monitoring -> 3.2. Harvest level trends
3. Monitoring -> 3.3. Trade trends

Additional Data Fields

Distribution
Lower depth limit (m): 200
Upper depth limit (m): 0
Habitats and Ecology
Generation Length (years): 13-20

The IUCN Red List Partnership

The IUCN Red List of Threatened Species™ is produced and managed by the IUCN Global Species Programme, the IUCN Species Survival Commission (SSC) and The IUCN Red List Partnership.

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.