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Technical Report · June 2020

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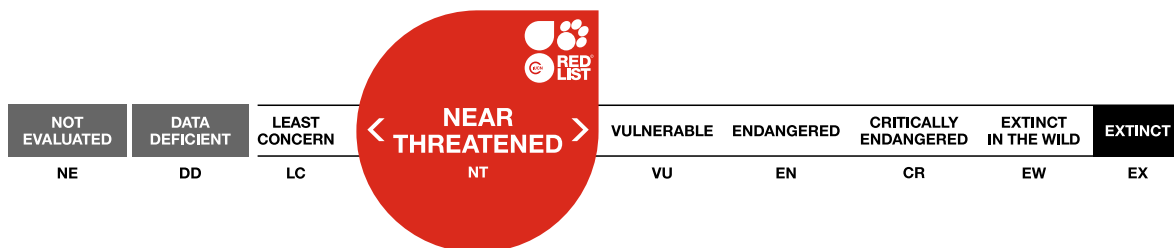
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Hexanchus griseus, Bluntnose Sixgill Shark

Assessment by: Finucci, B. *et al.*



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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Chondrichthyes	Hexanchiformes	Hexanchidae

Scientific Name: *Hexanchus griseus* (Bonnaterre, 1788)

Synonym(s):

- *Hexanchus corinus* Jordan & Gilbert, 1880
- *Hexanchus griseus* ssp. *australis* de Buen, 1960
- *Monopterus griseus* (Bonnaterre, 1788)
- *Notidanus griseus* (Bonnaterre, 1788)
- *Notidanus monge* Risso, 1827
- *Notidanus vulgaris* Pérez Canto, 1886
- *Squalus vacca* Bloch & Schneider, 1801
- *Squalus griseus* Bonnaterre, 1788

Regional Assessments:

- Mediterranean
- Europe

Common Name(s):

- English: Bluntnose Sixgill Shark

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: Near Threatened A2bd [ver 3.1](#)

Year Published: 2020

Date Assessed: November 21, 2019

Justification:

The Bluntnose Sixgill Shark (*Hexanchus griseus*) is a large (to 550 cm total length) deep-water shark known with a global yet patchy distribution. It occurs in tropical, temperate and boreal waters off continental slopes and shelves, and occasionally inshore at depths of 0–2,490 m, but mostly at depths of 200–1,100 m. It has large litters but an estimated late age-at-maturity that reduces its capacity to recover from fishing pressure. The species is infrequently caught incidentally in deep-water industrial and artisanal fisheries across its range. There is high distribution overlap with intensive fishing pressure, reported declines in part of its range and increases in others, and a lack of species-specific management across its entire range. The Bluntnose Sixgill Shark is estimated to have undergone a population reduction of 20–29% over the past three generations (160 years) based on abundance data and actual

levels of exploitation, and it is assessed as Near Threatened (close to meeting Vulnerable A2bd).

Previously Published Red List Assessments

2009 – Near Threatened (NT)

<https://dx.doi.org/10.2305/IUCN.UK.2005.RLTS.T10030A3155348.en>

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

1996 – Vulnerable (VU)

Geographic Range

Range Description:

The Bluntnose Sixgill Shark has a widespread, yet patchy, distribution across all oceans (Ebert *et al.* 2013).

Country Occurrence:

Native, Extant (resident): Albania; Algeria; Angola; Argentina; Australia; Bahamas; Belgium; Bermuda; Bosnia and Herzegovina; Brazil; Canada; Chile; China; Colombia; Comoros; Congo; Congo, The Democratic Republic of the; Costa Rica; Croatia; Cuba; Denmark; Ecuador; Egypt; Faroe Islands; France; Gabon; Gambia; Germany; Gibraltar; Greece; Guyana; Iceland; India; Indonesia; Ireland; Isle of Man; Italy; Japan; Libya; Madagascar; Malaysia; Maldives; Malta; Mauritania; Mayotte; Mexico; Monaco; Montenegro; Morocco; Mozambique; Namibia; Netherlands; New Zealand; Nigeria; Norway; Oman; Papua New Guinea; Peru; Philippines; Portugal (Azores, Madeira); Senegal; Slovenia; Somalia; South Africa; Spain (Balears, Canary Is.); Sri Lanka; Sweden; Tunisia; Turkey; United States; Uruguay; Venezuela, Bolivarian Republic of; Western Sahara

Presence Uncertain & Origin Uncertain: Cabo Verde; Côte d'Ivoire; Nicaragua

FAO Marine Fishing Areas:

Native: Pacific - western central

Native: Atlantic - northeast

Native: Atlantic - northwest

Native: Atlantic - southeast

Native: Atlantic - southwest

Native: Indian Ocean - eastern

Native: Pacific - southwest

Native: Atlantic - eastern central

Native: Indian Ocean - western

Native: Mediterranean and Black Sea

Native: Pacific - eastern central

Native: Pacific - northwest

Native: Pacific - northeast

Native: Pacific - southeast

Native: Atlantic - western central

Distribution Map



Leaflet | Powered by Esri | RJGC, Esri, HERE, FAO, NOAA, AAFC, NRCAN

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 nominal catch-per-unit-effort (CPUE) and relative biomass in the Northeast Atlantic (ICES-WGEF 2018, F. Neat unpubl. data 2019). The trend data were analyzed over three generation lengths (160 years) using a Bayesian state-space framework (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).

The trend analysis of the CPUE and relative abundance estimates from the Northeast Atlantic over 21 years between 1998–2018 (ICES-WGEF 2018, F. Neat unpubl. data 2019) revealed an annual rate of increase of 1.4%, consistent with an estimated increase of 80.4% over three generation lengths (160 years), with the highest probability of no major reductions in population over the past three generation lengths.

In the Northeast Pacific, video surveillance and dive encounter rates in the Strait of Georgia showed large declines in sightings between 1999–2005 (COSEWIC 2007). A decline in sightings was also reported from Elliott Bay, Puget Sound between 2003–2005 and 2008–2015 (Griffing *et al.* 2019). However, these observed declines are not thought to be representative of true reduction in population and may be attributed to environmental or behavioural factors, or natural variability of juvenile recruitment (COSEWIC 2007, Griffing *et al.* 2019). Genetic studies in Puget Sound suggest the local stock is fairly large (Larson *et al.* 2010), but there is apparent cohort-specific, broad variation in abundance (Williams *et al.* 2010).

In the Arabian Seas, the species was targeted in the deep-water fisheries in the Maldives before stocks collapsed and were replaced with a fishery for gulper sharks (*Centrophorus* spp) (Anderson and Ahmed 1993, Ali 2015). The gulper shark fishery also collapsed over a short period of time (20 years) (Ali 2015); while there are no data available, the rapid decline of the gulper shark fishery may be indicative of the duration of the former targeted fishery for the Bluntnose Sixgill Shark prior to the collapse of stocks.

In the Indo-Pacific, abundance indices from CPUE data of the species landed at Cilacap-Central Java and Tanjung Luar, Indonesia show no trends between 2014–2018, but only a small number of individuals were caught (Dharmadi unpubl. data 2019).

The species is infrequently reported across much of its range including past and/or present targeted shark fisheries in the Northeast Atlantic (ICES-WGEF 2018), the Mediterranean (Ferretti *et al.* 2005), east and west Africa (Fernández *et al.* 2005, Georgeson *et al.* 2019), India (K.K. Bineesh unpubl. data 2019), Indonesia (Blaber *et al.* 2009, White and Dharmadi 2010), and Australia (Graham *et al.* 2001, Walker and Gason 2007). It is likely to have some refuge at depth in parts of its range. Based on documented declines in part of its range (Maldives) and increasing trends in others (Northeast Atlantic), overlap with fishing pressure and refuge at depth, a global population reduction of 20–29% was estimated over three generation lengths (160 years). Therefore, the Bluntnose Sixgill Shark is assessed as Near Threatened (close to meeting Vulnerable A2bd).

For further information about this species, see [Supplementary Material](#).

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

The Bluntnose Sixgill Shark is demersal in tropical, temperate and boreal waters on the slope, shelf, and occasionally inshore at depths of 0–2,490 m, but mostly 200–1,100 m (Ebert *et al.* 2013, Griffing *et al.* 2014, Weigmann 2016). It also occurs on seamounts and mid-ocean ridges and is often associated areas of high biological productivity and upwelling (Ebert *et al.* 2013). It reaches a maximum size of 550 cm total length (TL) (Weigmann 2016); males mature at ~309–330 cm TL and females mature at 350–420 cm TL (Ebert *et al.* 2013). Reproduction is aplacental viviparous with litter sizes of 47–108, and size-at-birth is estimated at 61–74 cm TL (Ebert *et al.* 2013). Female age-at-maturity is estimated at 26.5 years and maximum age is estimated at 80 years (COSEWIC 2007), resulting in a generation length of 53 years. This study has not been validated and estimates should be used with caution.

Systems: Marine

Use and Trade

The species is utilized for its meat, liver oil, cartilage, and fish meal (Anderson and Ahmed 1993, Last and Stevens 2009, Akhilesh and Ganga 2013). In the early 20th century, the species was also utilized for its leather (Fisheries and Oceans Canada 2012). Given its large size, its meat, fins, and liver oil can fetch high market prices in some places (Dharmadi unpubl. data 2019). Its fins have been reported in the international fin trade in low quantities (Fields *et al.* 2018).

Threats (see Appendix for additional information)

The Bluntnose Sixgill Shark is infrequently reported as targeted and incidental catch from industrial and artisanal demersal trawl, longline, handline, traps, and gillnet fisheries across its range (e.g. Celona *et al.* 2005, White and Dharmadi 2010, Fisheries and Oceans Canada 2012, Akhilesh and Ganga 2013, da Silva *et al.* 2015, S. Tanaka unpubl. data 2019). The species is also targeted by recreational fishers (Fisheries and Oceans Canada 2012, da Silva *et al.* 2015).

In the Northeast Atlantic, despite a number of management measures to reduce deep-water shark fishing mortality, the species is still captured in considerable quantities in demersal fisheries (e.g. Fauconnet *et al.* 2019). Post-release mortality for the species is likely to be low (Ellis *et al.* 2017), and the species is mostly discarded (Silva and Ellis 2019).

Off southeast Australia, the species has been regularly reported from demersal trawl and longline fisheries at depths of 200–600 m (Walker and Gason 2007). In the Australian Southern and Eastern Scalefish and Shark Fishery (SESSF), total shark catches from the eastern and western deep-water shark fisheries peaked in 1998 at 330 t and 400 t, respectively, before declining to <25 t in each zone by 2007 (Patterson *et al.* 2018). A semi-quantitative risk assessment for chondrichthyan bycatch species taken in the SESSF ranked this species with medium risk from current commercial fishing as fishing effort has been reduced and the species likely has some refuge at depth (T. Walker unpubl. data 2019).

Conservation Actions (see Appendix for additional information)

Since 2010, the European Union Fisheries Council prohibited direct fishing for deep-water sharks, including the Bluntnose Sixgill Shark, in European Community and international waters, and in 2012, no allowances for bycatch were implemented (ICES-WGEF 2018). In 2017 and 2018, a restrictive bycatch allowance (10 t) was trialled, permitting limited landings of unavoidable catches of deep-water sharks in

directed artisanal demersal longline fisheries for Black Scabbardfish (*Aphanopus* spp). Additional management actions for this region include banned use of trawls and gillnets in waters >200 m in Azores, Madeira and Canary Islands and international waters regulated by ICES (NEAFC regulatory Area); banned use of gillnets by European Union vessels at depths >600 m; maximum bycatch limits of deep-water shark in Hake (*Merluccius merluccius*) and Monkfish (*Lophius* spp) gillnet catches; area restrictions by vessel size and gear, gear restrictions (hook size, maximum number of hooks on longline gear), and a network of closed areas in Azorean waters; closure of the Condor seamount to deep-water fishing in 2010 (ICES-WGEF 2018). In addition, the General Fisheries Commission for the Mediterranean (GFCM) banned bottom trawling below depths of >1,000 m in the Mediterranean Sea in 2005.

The Maldives has a general ban on shark fishing since 1998 which affords this deep-sea species protection from fisheries exploitation within that range (Ali 2015). Conservation measures are generally lacking elsewhere in the species' patchy range. In Canada, the Bluntnose Sixgill Shark is listed as a species of Special Concern under the Species at Risk Act (SARA) in 2009 and by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in 2007 and a management plan under SARA was developed to ensure the recovery and conservation of the species (Fisheries and Oceans Canada 2012). Further research is needed on population size and trends of the species, and catches should be monitored.

Credits

- Assessor(s):** Finucci, B., Barnett, A., Bineesh, K.K., Cheok, J., Cotton, C.F., Dharmadi, Graham, K.J., Kulka, D.W., Neat, F.C., Pacoureaux, N., Rigby, C.L., Tanaka, S. & Walker, T.I.
- Reviewer(s):** Simpfendorfer, C. & Dulvy, N.K.
- Facilitator(s) and Compiler(s):** Rigby, C.L., Finucci, B., Yan, H. & Dulvy, N.K.
- 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?
11. Marine Deep Benthic -> 11.1. Marine Deep Benthic - Continental Slope/Bathyl Zone (200-4,000m)	-	-	-
11. Marine Deep Benthic -> 11.5. Marine Deep Benthic - Seamount	Resident	Suitable	Yes

Use and Trade

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

End Use	Local	National	International
Research	No	No	Yes
Food - human	Yes	Yes	Yes
Handicrafts, jewellery, etc.	Yes	Yes	Yes
Food - animal	Yes	Yes	Yes
Medicine - human & veterinary	Yes	Yes	Yes
Fuels	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	Minority (50%)	Slow, significant declines	Low impact: 5
	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: Yes
Systematic monitoring scheme: No
In-place land/water protection
Conservation sites identified: No
Percentage of population protected by PAs: 1-10
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: 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

Research Needed

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

Research Needed
1. Research -> 1.2. Population size, distribution & trends
1. Research -> 1.3. Life history & ecology
3. Monitoring -> 3.1. Population trends
3. Monitoring -> 3.2. Harvest level trends

Additional Data Fields

Distribution
Lower depth limit (m): 2,490
Upper depth limit (m): 0

Habitats and Ecology
Generation Length (years): 53

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