

Leafscale Gulper Shark, *Centrophorus squamosus*

Report Card assessment	Sustainable		
IUCN Red List Australian Assessment	Least Concern	IUCN Red List Global Assessment	Endangered
Global Assessors	Finucci, B., Bineesh, K.K., Cheok, J., Cotton, C.F., Dharmadi, Kulka, D.W., Neat, F.C., Pacoureaux, N., Rigby, C.L., Tanaka, S. & Walker, T.I.		
Australian Assessors	Kyne, P.M., Heupel, M.R., White, W.T. & Simpfendorfer, C.A. (Shark Action Plan)		
Report Card Remarks	Sensitive to fishing pressure with some catches in Australia but mostly lives below fished depths.		

Summary

The Leafscale Gulper Shark is a deepwater dogfish with a global distribution. Its flesh and livers are marketed in varying quantities over much of the species' range. Most targeted fishing pressure is in the northeast Atlantic where it is an important component of deepwater fisheries and declines of >80% have

been reported. Catches of the species off Australia and New Zealand are relatively low and do not represent a significant component of deepwater catches. However, significant declines in closely related species in southeast Australia led to management measures to promote recovery of deepwater dogfish populations, such as catch limits and a ban on trawling below 700 m. The Leafscale Gulper Shark has intrinsically very low productivity, evident in significant population declines where it is heavily fished. However, in Australia it mostly lives below fished depths. Therefore, the species is assessed as globally Endangered (IUCN) and in Australia as Least Concern (IUCN) (Kyne et al. 2021) and Sustainable (SAFS).



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Distribution

The Leafscale Gulper Shark occurs sporadically in the eastern Atlantic (Iceland to South Africa), in the Indian Ocean (South Africa and the Aldabra Islands), and the western Pacific (Japan, Taiwan, Philippines, Indonesia, New Zealand and Australia); a recent capture off the Galapagos Island extended the range to the eastern central Pacific (Acuna-Marrero et al. 2013). In Australia, it is found in New South Wales, Victoria and Tasmania with the distribution probably more widespread (Last and Stevens 2009).

Stock structure and status

There is no information on the stock structure of this species in Australian waters. There has been a decreasing trend in biomass of the Leafscale Gulper Shark in Scottish and Irish deepwater surveys in the Northeast Atlantic (ICES 2012). Gulper Shark (*Centrophorus granulosus*) has reportedly declined by 80–95% in the Northeast Atlantic, and so it can be assumed that Leafscale Gulper Shark has also

undergone population decline in that region, given its similar life history, range and exposure to fisheries. In Australia, population trends for the species are not known largely because it lives below fished depths and is rarely encountered. This depth distribution also means that the population has avoided the major impacts observed in other gulper shark species in southeast Australia.

Fisheries

There are sporadic records of Leafscale Gulper Shark around southeast Australia where it is taken only occasionally as trawl bycatch. However, dramatic declines of >90% were observed in this area for other gulper shark species (Graham et al. 2001). Catch limits and spatial and depth closures that included a ban on trawling below 700 m were implemented to promote recovery of the overfished gulper shark populations (AFMA 2006, AFMA 2012). Some fishers off southern New South Wales target Leafscale Gulper Shark and Brier Shark with demersal longlines, landing 1 to 6 tonnes annually (NSW DPI catch data). Observed catch rates of Leafscale Gulper Shark by one of these fishers of ~7 per 100 hooks (K. Graham, unpubl. data) suggests that the stock size off southern Australia may be greater than indicated by incidental trawl captures.

Habitat and biology

The Leafscale Gulper Shark is demersal on the continental slopes at depths 230 to 2,400 m, and pelagic in the upper 1,250 m of oceanic waters (Compagno and Niem 1998). Maximum size is 160 cm total length (TL), with males mature at 100 cm TL and females at 124 cm TL (Compagno and Niem 1998, Parker and Francis 2012). Maximum age estimates vary between 42 and 70 years (Clarke et al. 2002, Parker and Francis (2012).

Longevity and maximum size	Longevity: estimated from 42–70 years Max size: 160 cm TL
Age and/or size at maturity (50%)	Males: 100 cm TL Females: 124 cm TL

CAAB Code: 37 020009

Link to IUCN Page: <https://www.iucnredlist.org/species/41871/68614964>

Link to page at Shark References: <http://www.shark-references.com/species/view/Centrophorus-squamosus>

References

- Acuña-Marrero, D., Zimmerhackel J.S., Mayorga, J., Hearn, A. 2013. First record of three shark species, *Odontaspis ferox*, *Mustelus albiginnis* and *Centrophorus squamosus*, from the Galápagos Islands. *Marine Biodiversity Records* 6: e87.
- AFMA 2006. *Response to Ministerial Direction- SESSF*. Australian Fisheries Management Authority. Australian Government.
- AFMA. 2012. *Upper-Slope Dogfish Management Strategy*. AFMA-managed fisheries. October 2012. Australian Fisheries Management Authority, Canberra.
- Clarke, M.W., Connolly, P.L. and Bracken, J.J. 2002. Age estimation of the exploited deepwater shark *Centrophorus squamosus* from the continental slopes of the Rockall Trough and Porcupine Bank. *Journal of Fish Biology* 60: 501–514.
- Compagno, L.J.V. and Niem, V.H. 1998. Squalidae. In: K.E. Carpenter and V.H. Niem (eds). *FAO species identification guide for fishery purposes. The living marine resources of the Western Central Pacific. Volume 2. Cephalopods, crustaceans, holothurians and sharks*. FAO, Rome.
- Gordon, J.D.M. 1999. *Management considerations of deep-water shark fisheries*. In: Shotton, R. (ed.) (ed.), *Case studies of the management of elasmobranch fisheries.*, pp. 480–920. FAO, Rome.
- Graham, K.J., Andrew, N.L. and Hodgson, K.E. 2001. Changes in the relative abundances of sharks and rays on Australian South East Fishery trawl grounds after twenty years of fishing. *Marine and Freshwater Research* 52: 549–561.
- ICES. 2012. Widely distributed and migratory stocks - Leafscale gulper shark (*Centrophorus squamosus*) in the Northeast Atlantic. Report of the ICES Advisory Committee 2012.
- Kyne, P.M., Heupel, M.R., White, W.T. and Simpfendorfer, C.A. 2021. *The Action Plan for Australian Sharks and Rays 2021*. National Environmental Science Program, Marine Biodiversity Hub, Hobart
- Last, P.R. and Stevens, J.D. 2009. *Sharks and Rays of Australia*. Second Edition. CSIRO Publishing, Collingwood.

Parker, S.J. and Francis, M.P. 2012. Productivity of two species of deepwater sharks, *Deania calcea* and *Centrophorus squamosus* in New Zealand. New Zealand Aquatic Environment and Biodiversity Report No. 103.