

Sandy Skate, *Pavoraja arenaria*

Report Card assessment	Undefined Stock		
IUCN Red List Australian Assessment	Data Deficient (Endemic to Australia)	IUCN Red List Global Assessment	Data Deficient
Global Assessors	Heaven, C. & Huveneers, C.		
Australian Assessors	Kyne, P.M., Heupel, M.R., White, W.T., Simpfendorfer, C.A. (Shark Action Plan) & Rigby, C.L.		
Report Card Remarks	Poorly-known; information needed on catch levels, biology, and post-release mortality.		

Summary

The Sandy Skate is a small poorly-known deepwater species endemic to temperate southern Australia where it occurs across the Great Australian Bight. It may be an incidental catch of the Commonwealth Trawl (CTS) and Great Australian Bight Trawl Sectors (GABT) of the Southern and Eastern Scalefish Fishery and of the Western Deepwater Trawl Fishery (WDTF), both of which operate across its entire depth range. It is assessed as at high risk in the

CTS mainly due to a lack of biological information and data on its proportion in catches of undifferentiated skates and rays. There is no information on catches within the GABT which overlaps with nearly its entire spatial range. The WDTF is at the western margin of the Sandy Skate's range and has limited effort, and there is no catch information for this species. If it is taken, the Sandy Skate is likely released, however, post-release mortality is unknown. The South-west Marine Parks Network may provide some refuge for the species. The Sandy Skate's vulnerability to fishing and climate change in southern Australian waters was assessed as medium and low, respectively. Given the entire overlap of this species range with fisheries, the lack of knowledge about catch levels, and that other deepwater skates have declined dramatically with fishing, it is not possible to determine if fishing is causing a population reduction and there is currently inadequate information available to assess the status. Therefore, the Sandy Skate is assessed as Data Deficient (IUCN) (Kyne et al. 2021) and Undefined Stock (SAFS).



Distribution

The Sandy Skate is endemic to temperate waters of southern Australia where it occurs in a wide range from Portland (Victoria) to Cape Leeuwin (Western Australia) (Last and Stevens 2009, Last et al. 2016).

Stock structure and status

There is currently no information on population size, structure, or trend for the species.

Fisheries

The Sandy Skate is likely taken incidentally in trawl fisheries and is caught in the Trawl Sector (CTS) of the Commonwealth Southern and Eastern Scalefish Fishery (SESSF) where it is assessed as at high risk due to its susceptibility to capture, unknown proportion in undifferentiated skate and ray logbook catches, and high number of missing biological attributes (Sporcic et al. 2021). It may also be caught in the Great Australian Bight Trawl (GABT) Sector of the SESSF (Heaven and Huveneers 2015, Kyne et al. 2021). Trawl effort in the GABT has halved since the peak effort in 2005 with most of this effort now on the continental shelf at depths of 120–200 m though there is still effort on the upper continental slope at depths of 200–700 m (Patterson et al. 2022), an area that overlaps with the depth range of the Sandy Skate. No catches of this species have been noted in analyses, surveys, or risk assessments of the GABT which may mean catches are negligible though this is not known for certain. Some other deepwater skates have declined dramatically when fished (Graham et al. 2001). If it is taken, the Sandy Skate is likely too small to be of commercial value and is likely released, however, post-release mortality is unknown. Recent fishing effort has been in the eastern half of the species' range with the western part unfished and as such providing some recent refuge for the species. It may also be taken in the Commonwealth Western Deepwater Trawl Fishery which overlaps with the western edge of the species' range and targets finfish and bugs (*Ibacus* spp.) at 200–700 m depths (Patterson et al. 2022). The fishery has limited effort with only 1–3 active vessels. The species vulnerability to fishing and climate change in southern Australian waters was assessed as medium and low, respectively (Walker et al. 2021). It may receive refuge in the Commonwealth South-west Marine Parks Network which include zoning and gear restrictions (Parks Australia 2023).

Habitat and biology

The Sandy Skate is demersal on the continental shelf and upper slope at depths of 190–710 m but mostly at 300–400 m (Last et al. 2016). Maximum size is at least 34 cm total length (TL) and males mature at approximately 29–33 years cm TL (Last et al. 2008, Last and Stevens 2009). Little else is known of its biology.

Longevity and maximum size	Longevity: unknown Max size: at least 34 cm TL
Age and/or size at maturity (50%)	Males: ~29–33 cm TL Females: unknown

CAAB Code: 37 031023

Link to IUCN Page: <https://www.iucnredlist.org/species/195471/68640323>

Link to page at Shark References: <https://shark-references.com/species/view/Pavoraja-arenaria>

References

- 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. *Journal of Marine and Freshwater Research* 52: 549–561
- Heaven, C. and Huveneers, C. 2015. *Pavoraja arenaria*. *The IUCN Red List of Threatened Species* 2015: e.T195471A68640323.
- 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., Mallick, S. and Yearsley, G.K. 2008. A review of the Australian skate genus *Pavoraja* Whitley (Rajiformes: Arhynchobatidae). *Zootaxa* 1812: 1–45.
- Last, P.R. and Stevens, J.D. 2009. *Sharks and Rays of Australia*. Second Edition. CSIRO Publishing, Collingwood, Australia.
- Last, P., White, W., Carvalho, M.R. de, Séret, B., Stehmann, M. and Naylor, G.J.P. 2016. *Rays of the World*. CSIRO Publishing, Clayton, Victoria, Australia.
- Parks Australia 2023. South-west Marine Parks Network. <https://parksaustralia.gov.au/marine/parks/south-west/>.

- Patterson, H., Bromhead, D., Galeano, D., Larcombe, J., Timmiss, T., Woodhams, J. and Curtotti, R. 2022. *Fishery status reports 2022*, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.
- Sporcic, M., Bulman, C.M. and Fuller, M. 2021a. *Ecological Risk Assessment for the Effects of Fishing. Report for Southern and Eastern Scalefish and Shark Fishery (Commonwealth Trawl Sector): Otter trawl Sub-fishery 2012-2016*. Report for the Australian Fisheries Management Authority. 277 p.
- Walker, T.I., Day, R.W., Awruch, C.A., Bell, J.D., Braccini, J.M., Dapp, D.R., Finotto, L., Frick, L.H., Garcés-García, K.C., Guida, L., Huveneers, C., Martins, C.L., Rochowski, B.E.A., Tovar-Ávila, J., Trinnie, F.I. and Reina, R.D. 2021. Ecological vulnerability of the chondrichthyan fauna of southern Australia to the stressors of climate change, fishing and other anthropogenic hazards. *Fish and Fisheries* 22(5), 1105–1135.