

Melbourne Skate, *Spiniraja whitleyi*

Report Card assessment	Recovering		
IUCN Red List Australian Assessment	Vulnerable (Endemic to Australia)	IUCN Red List Global Assessment	Vulnerable
Global Assessors	Sherman, C.S., Derrick, D., Kyne, P.M. & Treloar, M.A.		
Australian Assessors	Kyne, P.M., Heupel, M.R., White, W.T., Simpfendorfer, C.A. (Shark Action Plan) & Rigby, C.L.		
Report Card Remarks	Significant declines due to historically high fishing pressure; however, pressure has significantly declined, population estimated to be increasing and now at low risk.		

Summary

The Melbourne Skate is a large continental shelf ray endemic to temperate waters of southern Australia in a wide range. It is caught in the Commonwealth Southern and Eastern Scalefish Fishery (SESSF) with some catch retained; post-release mortality is unknown. In recent years, an estimated 30% of 'mixed skates' are retained in the SESSF. Significant declines in all skate species were noted in SESSF surveys over 20 years from 1977–1997 including the Melbourne Skate in southern New South Wales at depths of 220–275 m. Thus, it likely has undergone significant population reduction in southeast Australia. However, fishing pressure has since declined significantly in the SESSF and in later years, the Melbourne Skate's catch-per-unit-effort increased, and it is now assessed as at low risk in the SESSF. The species would have some refuge in the western parts of its range that are lightly fished or unfished and in the network of marine parks. Its vulnerability to fishing and climate change was assessed as low. Therefore, the Melbourne Skate is assessed as Vulnerable (IUCN) (Kyne et al. 2021) and Recovering (SAFS).



Distribution

The Melbourne Skate is endemic to temperate southern Australian waters (Last et al. 2016). It occurs in a wide range from Sydney (New South Wales) to Albany (Western Australia) (Last and Stevens 2009).

Stock structure and status

The Melbourne Skate is rare on the margins of its range but common elsewhere (Sherman et al. 2021). It likely has undergone significant historic population declines in the Commonwealth Southern and Eastern Scalefish Fishery (SESSF), but its population has since been estimated to be increasing (Sherman et al. 2021).

Fisheries

The Melbourne Skate is an incidental catch of mainly trawl and to a lesser extent Danish seine fisheries. It is caught in the Commonwealth Southern and Eastern Scalefish Fishery (SESSF) with an estimated annual average catch of 176 t between 2000–2006, 30% of which was retained with the remainder released; post-release mortality is unknown (Walker and Gason 2007). From 1998–2006, the species' standardised catch-per-unit effort in the SESSF increased in both the Commonwealth Trawl (CTS) and the Great Australian Bight Trawl (GABT) Sectors, which may partly be due to increasing effort on the shelf, particularly in the GABT (Walker and Gason 2007). In recent years, an estimated 30% of 'mixed skates' are retained in the CTS (Daley and Gray 2020). There was a decline of 85–88% in mean catch rates of deepwater skates off Ulladulla and Eden in the SESSF over 20 years from 1977–1997 including the Melbourne at depths of 220–275 m (Graham et al. 2001). The species has likely undergone some population reduction in southern New South Wales in the upper slope part of its depth range due to the historically high levels of fishing pressure. Fishing pressure has declined significantly since and the Melbourne Skate is now assessed as at low risk in all sectors of the SESSF in which its caught (Sporcic et al. 2021a, b, c). It may also be caught in the New South Wales Ocean Trawl Fishery and although there is no species-specific catch data, catches are likely minimal as skates (Rajidae) and softnose skates (Arhynchobatidae) undifferentiated and combined, were noted in only 4% of observed shots over two years (2017/18–2018/19) (Johnson and Barnes 2023). In addition, since the early 1990s, effort in the OTF has declined markedly by 80% (Johnson and Barnes 2023). It is caught in the South Australian Spencer Gulf Prawn Fishery and is assessed as medium risk (PIRSA 2014). It would receive some refuge in the unfished or lightly fished western parts of its range, in the Commonwealth South-east and South-west Marine Park Networks, and in the Tasmanian inshore designated shark refuge areas (SRA) (Parks Australia 2023). The SRAs may also be important to the Melbourne Skate for recruitment (Peronnes in prep.). The species vulnerability to fishing and climate change was assessed as low (Walker et al. 2021).

Habitat and biology

The Melbourne Skate is demersal on the continental shelf and slope at depths of 0–345 m though mainly occurs close inshore (Last et al. 2016). Maximum size is approximately 200 cm total length (TL) and maximum age estimated to 16 years (Treloar 2008). Males mature at approximately 8 years and 127 cm TL and females at approximately 10–11 years and 140 cm TL (Treloar 2008, Last et al. 2016, B. Wolley pers. comm. 2022).

Longevity and maximum size	Longevity: estimated 16 years Max size: ~200 cm TL
Age and/or size at maturity (50%)	Males: ~8 years, 127 cm TL Females: 10–11 years, 140 cm TL

CAAB Code: 37 031006

Link to IUCN Page: <https://www.iucnredlist.org/species/161496/68643826>

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

References

- Daley, R.K. and Gray, C. A. 2020. On-the-water management solutions to halt the decline and support the recovery of Australia's endemic elasmobranchs. Report for the Australian Marine Conservation Society and Humane Society International.
- 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.
- Johnson, D.D. and Barnes, T.C. 2023. *Observer-based survey of the prawn trawl sectors (inshore & offshore prawn) of the New South Wales ocean trawl fishery. Retained and discarded catch characteristics.* Fisheries Final Report Series | No. 163. NSW Department of Primary Industries.

- 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, 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. Australian Marine Parks Network. <https://parksaustralia.gov.au/marine/parks/>.
- PIRSA 2014. *Ecologically Sustainable Development Risk Assessment of South Australia's Spencer Gulf Prawn Fishery*. Government of South Australia.
- Sherman, C.S., Derrick, D., Kyne, P.M. and Treloar, M.A. 2021. *Spiniraja whitleyi*. *The IUCN Red List of Threatened Species 2021*: e.T161496A68643826.
- 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.
- Sporcic, M., Bulman, C.M. and Fuller, M. 2021b. *Ecological Risk Assessment for the Effects of Fishing. Report for Southern and Eastern Scalefish and Shark Fishery, Great Australian Bight Sector: Otter trawl sub-fishery 2012–2016*. Report for the Australian Fisheries Management Authority. 174 p.
- Sporcic, M., Bulman, C.M. and Fuller, M. 2021c. *Ecological Risk Assessment for the Effects of Fishing. Report for Southern and Eastern Scalefish and Shark Fishery (Commonwealth Trawl Sector): Danish Seine Sub-fishery 2012-2016*. Report for the Australian Fisheries Management Authority. 197 p.
- Treloar, M.A. 2008. *Aspects of the life history of skates from southeastern Australia*. PhD thesis. Deakin University.
- Walker, T. I., and Gason, A. S. 2007. *Shark and other chondrichthyan byproduct and bycatch estimation in the Southern and Eastern Scalefish and Shark Fishery*. Final report to Fisheries Research and Development Corporation Project No. 2001/007. Primary Industries Research Victoria: Queenscliff, Victoria, Australia.
- 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.