

Eastern Fiddler Ray, *Trygonorrhina fasciata*

Report Card assessment	Sustainable		
IUCN Red List Australian Assessment	Least Concern (Endemic to Australia)	IUCN Red List Global Assessment	Least Concern
Global Assessors	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	Common, stable catches, and mostly released but high post-release survival, and refuge in shallow waters.		

Summary

The Eastern Fiddler Ray is a medium-sized common species endemic to subtropical and temperate shallow continental shelf waters of eastern Australia in a relatively restricted range. It is caught incidentally in trawl fisheries and is sometimes retained for its meat, though its mostly released and post-release survival is high. It is taken in the Southern and Eastern Scalefish and Shark Fishery with catches generally stable. It is also regularly taken in New South Wales with also relatively stable and possibly increasing catches since the mid-1990s. In Queensland, its range overlaps with trawl fisheries and it is assessed as at low risk from the fisheries. It has refuge in untrawled and lightly trawled shallow areas and its vulnerability was assessed as low and medium for fishing and climate change, respectively. Therefore, the Eastern Fiddler Ray is assessed as Least Concern (IUCN) (Kyne et al. 2021) and Sustainable (SAFS).



Distribution

The Eastern Fiddler Ray is endemic to subtropical and temperate waters of eastern Australia (Last et al. 2016). It occurs in a relatively restricted range from southern Queensland to at least Twofold Bay (New South Wales) (Last and Stevens 2009).

Stock structure and status

There is currently no information on population size, structure, or trend for the species. However, it is fairly common in shallow water across its range (Last and Stevens 2009).

Fisheries

The Eastern Fiddler Ray is incidentally caught in trawl fisheries. It is caught in the Southern and Eastern Scalefish and Shark Fishery with an estimated average annual catch of 90 t between 2000–2006 (called

the Southern Fiddler Ray but likely the Eastern Fiddler Ray and *Trygonorrhina* sp. A) (Walker and Gason 2007). It is taken in the Commonwealth Trawl (CTS) and Danish Seine (DS) sectors with some retention as byproduct for its meat though its mostly released; post-release survival is high (Thomas and Chick 2007, Walker and Gason 2007). The catch-per-unit-effort (CPUE) showed a decreasing trend though this was likely driven by the very high catch rate in 1998 after which the CPUE fluctuated but was stable overall (Walker and Gason 2007). In recent years, 1.8 t was observed as caught in the CTS though the catch may have been greater as it could have been part of the generic catch of ‘skates and rays’ (Sporcic et al. 2021a). The species has possibly undergone population decline due to the historically high levels of fishing pressure in the CTS, however, fishing pressure has declined significantly, and it is now assessed as at low risk in the CTS, and at medium risk from the DS sector (Kyne et al. 2021, Sporcic et al. 2021a, b). In New South Wales (NSW), the Eastern Fiddler Ray was regularly caught in inshore trawls of the Ocean Trawl Fishery along the southern half of the state and retained with commercial landings of ‘shovelnose ray’ and ‘fiddler ray’ groups throughout NSW relatively stable since the mid-1990s. Species-specific reporting was introduced in NSW in 2009 which indicated that the Eastern Fiddler Ray represents about 20% of the shovelnose/fiddler ray catches (Rowling et al. 2010, Huvneers 2015). Estimated catches of the Eastern Fiddler Ray have increased from 1990–2017 despite decreases in effort, although areas of operation and fleet characteristics have also changed (Johnson and Barnes 2023). It is also caught and retained in the New South Wales Ocean Trap and Line Fishery (Johnson and Barnes 2022). In Queensland, its range overlaps with a number of trawl fisheries but it is assessed as at low risk from these fisheries (Campbell et al. 2018). Untrawled or lightly trawled shallow water areas across its range likely provide refuge for the species (Huvneers 2015). The species vulnerability to fishing and climate change was also assessed as low and medium, respectively (Walker et al. 2021).

Habitat and biology

The Eastern Fiddler Ray is demersal on the continental shelf at depths of 0– 100 m and mostly inhabits shallow soft substrates and seagrass beds (Huvneers 2015). Maximum size is approximately 120 cm total length (TL) (Last et al. 2016). Little else is known of its biology.

Longevity and maximum size	Longevity: unknown Max size: ~120 cm TL
Age and/or size at maturity (50%)	Both sexes: unknown

CAAB Code: 37 027006

Link to IUCN Page: <https://www.iucnredlist.org/species/41866/43270478>

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

References

- Campbell, M., Courtney, A., Wang, N., McLennan, M. and Zhou, S. 2018. *Estimating the impacts of management changes on bycatch reduction and sustainability of high-risk bycatch species in the Queensland East Coast Otter Trawl Fishery*. FRDC Final Report Project number 2015/014, Brisbane, Queensland.
- Huvneers, C. 2015. *Trygonorrhina fasciata*. *The IUCN Red List of Threatened Species* 2015: e.T41866A43270478.
- Johnson, D.D. and Barnes, T.C. 2022. Observer program data summary - NSW Ocean Trap & Line Fishery - line fishing western zone. NSW Department of Primary Industries, Fisheries.
- 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.
- Rowling, K., Hegarty, A. and Ives, M. 2010. Status of Fisheries Resources NSW 2008/09. Industry and Investment NSW, Cronulla.
- 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 (Commonwealth Trawl Sector): Danish Seine Sub-fishery 2012-2016*. Report for the Australian Fisheries Management Authority. 197 p.
- Thomas, P. and Chick, R. 2007. *Physiological stress and post-release discard survival of quantitatively important by-catch species*. In: Svane, I., Rodda, K., and Thomas, P. (eds), Prawn Fishery By-catch and Discards: marine ecosystem analysis – population effects. Project No. 2003/023. SARDI Research Report Series No. 199, pp. 263–332. SARDI - Aquatic Sciences, Adelaide.
- 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.