

Argus Skate, *Dentiraja polyommata*

Report Card assessment	Sustainable		
IUCN Red List Australian Assessment	Least Concern (Endemic to Australia)	IUCN Red List Global Assessment	Least Concern
Global Assessors	Kyne, P.M. & Rigby, C.L.		
Australian Assessors	Kyne, P.M., Heupel, M.R., White, W.T., Simpfendorfer, C.A. (Shark Action Plan) & Rigby, C.L.		
Report Card Remarks	Fishing pressure low and depth and significant spatial refuge.		

Summary

The Argus Skate is a small deepwater ray endemic to tropical northeast Australia where it occurs in a relatively restricted range. It is common in at least the southern part of its range. The species is incidentally caught in trawl and possibly line fisheries. It is caught in the Queensland deepwater eastern king prawn sector of the East Coast Trawl Fishery (ECTF) and released as elasmobranch retention is prohibited. Post-release mortality is unknown,



however the ECTF only operates to a maximum depth of 300 m and is at the southern margin of the Argus Skate's range providing the species depth and significant spatial refuge. It may be caught in the Line Sector of the Coral Sea Fishery (CSF), though its range overlaps only marginally with the CSF in which the Line Sector has low effort and trawling is no longer permitted. It also receives significant refuge in the Coral Sea Marine Park. Therefore, the Argus Skate is assessed as Least Concern (IUCN) (Kyne et al. 2021) and Sustainable (SAFS).

Distribution

The Argus Skate is endemic to tropical northeast Australia (Last et al. 2016). It has a relatively restricted known range in Queensland where it occurs from Townsville to Rockhampton (Last and Stevens 2009). It may occur more widely (Last and Stevens 2009), given that there have been few surveys and limited fishing effort across its spatial and depth range.

Stock structure and status

There is currently no information on population size, structure, or trend for the species. However, it is common in at least the southern part of its range (Rigby et al. 2016a).

Fisheries

The Argus Skate is incidentally caught in trawl and possibly line fisheries. It is one of the most common deepwater bycatch species of the Queensland deepwater eastern king prawn sector of the East Coast Trawl Fishery (ECTF) and released as elasmobranch retention is prohibited (Rigby et al. 2016b). Although bycatch reduction devices (BRDs) have been mandatory since 2002, their effectiveness is limited at excluding small rays such as this species (Griffiths et al. 2006). It was assessed at high risk from the ECTF based on its estimated intrinsically low productivity and high PRM, and low BRD effectiveness (Pears et al. 2012, Jacobsen et al. 2018). Subsequent research found this oviparous species has a higher biological productivity than estimated as it matures relatively early and has a continuous reproductive cycle (Rigby et al. 2016a). Although PRM is high (C. Rigby unpubl. data 2016) and BRDs are not effective for this species, the ECTF only operates in the southern part of the species' range and to a maximum depth of 300 m, providing the Argus Skate with some refuge at depth and significant spatial refuge (Rigby et al. 2016a). It is unlikely to be taken in the Queensland Deepwater Fin Fish Fishery which uses benthopelagic rather than demersal gear, has limited effort, and mainly operates further south than this species' range (DEEDI 2010, DAF 2019). It may be caught in the Line Sector of the Commonwealth Coral Sea Fishery (CSF), although the CSF overlaps only marginally with the species range and the Line sector has low effort with only two vessels active in recent years and trawling, which had historically low effort, is no longer permitted (Patterson et al. 2022). The species is likely released if caught as it has no commercial value and the CSF has implemented chondrichthyan handling practices to maximise post-release survival (AFMA 2010). The species has also received significant protection since 2014 with the implementation of the Coral Sea Marine Park, which includes zoning and gear restrictions (Patterson et al. 2022, Parks Australia 2023).

Habitat and biology

The Argus Skate is demersal on the continental shelf and upper slope at depths of 135–400 m (Last et al. 2016). Maximum size is approximately 38 cm total length (TL) and maximum age estimated to 10 years (Last et al. 2016, Rigby et al. 2016a). Males mature at 4 years and 28 cm TL and females at 5.1 years and 31 cm TL and (Rigby et al. 2016a).

Longevity and maximum size	Longevity: estimated 10 years Max size: ~38 cm TL
Age and/or size at maturity (50%)	Males: 4 years, 28 cm TL Females: 5 years, 31 cm TL

CAAB Code: 37 031042

Link to IUCN Page: <https://www.iucnredlist.org/species/202053/68621618>

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

References

- Australian Fisheries Management Authority (AFMA). 2010. *Coral Sea Fishery. Bycatch and discarding workplan*. 1 July 2010 to 30 June 2012. AFMA, Canberra.
- Department of Agriculture and Fisheries (DAF) 2019. Queensland Fisheries Summary Report. Catch and effort data for Queensland's Commercial Fisheries. State of Queensland.
- Department of Employment, Economic Development and Innovation (DEEDI). 2010. Annual Status Report 2010. Deep Water Fin Fish Fishery. The State of Queensland, Department of Employment, Economic Development and Innovation, Brisbane.
- Griffiths, S. P., Brewer, D. T., Heales, D. S., Milton, D. A. and Stobutzki, I. C. 2006. Validating ecological risk assessments for fisheries: assessing the impacts of turtle excluder devices on elasmobranch bycatch populations in an Australian trawl fishery. *Marine and Freshwater Research* 57: 395–401.
- Jacobsen, I., Zeller, B., Dunning, M., Garland, A., Courtney, T. and Jebreen, E. 2018. *An ecological risk assessment of the southern Queensland East Coast Otter Trawl Fishery and River and Inshore Beam Trawl Fishery*. Department of Agriculture and Fisheries.

- 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. Coral Sea Marine Park. <https://parksaustralia.gov.au/marine/parks/coral-sea/>.
- 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.
- Pears, R.J., Morison, A.K., Jebreen, E.J., Dunning, M.C., Pitcher, C.R., Courtney, A.J., Houlden, B. and Jacobsen, I.P. 2012. *Ecological Risk Assessment of the East Coast Otter Trawl Fishery in the Great Barrier Reef Marine Park*. Great Barrier Reef Marine Park Authority, Townsville.
- Rigby, C.L., White, W.T., Smart, J.J., and Simpfendorfer, C.A. 2016a. Life histories of two deep-water Australian endemic elasmobranchs: Argus skate *Dipturus polyommata* and eastern spotted gummy shark *Mustelus walkeri*. *Journal of Fish Biology* 88, 1149–1174.
- Rigby, C.L., White, W.T., and Simpfendorfer, C.A. 2016b. Deepwater chondrichthyan bycatch of the Eastern King Prawn Fishery in the southern Great Barrier Reef, Australia. *PLoS ONE* 11(5), e0156036.