

Giant Devilray, *Mobula mobular*

Report Card assessment	Sustainable		
IUCN Red List Australian Assessment	Near Threatened	IUCN Red List Global Assessment	Endangered
Global Assessors	Marshall, A., Barreto, R., Carlson, J., Fernando, D., Fordham, S., Francis, M.P., Herman, K., Jabado, R.W., Liu, K.M., Rigby, C.L. & Romanov, E.		
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 in population globally, regionally connected and minimal threats in Australia. Listed on EPBC Act (Migratory), CITES Appendix II, CMS Appendices I & II.		

Summary

The Giant Devilray is a large ray that is highly-mobile and globally distributed in tropical to temperate pelagic waters. Due to its very low biological productivity, it is highly susceptible to exploitation. In Australia, it is caught infrequently. If caught, it would be released as it has been a protected species in all Australian Commonwealth waters since 2015 and is protected in West Australian waters. Globally, significant population declines have occurred in much of its distribution due to its



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very low biological productivity, current and ongoing high levels of industrial and artisanal fishing pressure, and demand for its meat and high-value gill plates. These declines include rapid localised depletions in Australian regional waters, that is, Indonesia and Philippines. As the species is migratory and individuals in Australia are connected regionally to the global population, the Australian status is influenced by the global status. However, fisheries interactions in Australia are minimal and thus, the Giant Devilray is assessed as Endangered globally (IUCN) and in Australia as Near Threatened (Kyne et al. 2021) and Sustainable (SAFS). The species is listed as Migratory (EPBC Act) and listed on CITES Appendix II and CMS Appendices I & II.

Distribution

The Giant Devilray is circumglobal in tropical to temperate waters (Last et al. 2016, Kyne et al. 2021). In Australia, it has a wide but patchy range, occurring along the east coast (Queensland and New South Wales), on the east coast of Tasmania, and on the northwest and southeast coasts of Western Australia, although it may occur more widely (Kyne et al. 2021).

Stock structure and status

The Giant Devilray is highly-mobile and can migrate significant distances (Marshall et al. 2020). The global population has declined significantly due to current and ongoing high levels of exploitation and

demand for its meat and high-value gill plates throughout much of its distribution, including regionally within Southeast Asia where rapid localised depletions have occurred (Marshall et al. 2020). This significant decline is also likely to have impacted the population both occurring and visiting Australian waters, however, in Australia the threats are minimal (Kyne et al. 2021).

Fisheries

The Giant Devilray is targeted and caught incidentally in industrial and artisanal coastal and pelagic fisheries, including purse seines and gillnets, and is retained for its highly valued gill plates and for its meat (except in Australia) (Marshall et al. 2020). In Australia, it does not frequently interact with fisheries due to its pelagic habitat and behaviour that limits its catchability in Australian fisheries (Kyne et al. 2021). *Mobula* spp. are infrequently caught in gillnets in the Queensland East Coast Inshore Fishery (Harry et al. 2011) and this species is considered at precautionary medium risk from the fishery based mainly on its low productivity; precautionary indicates the low frequency of interactions are not expected to have a significant or long-term impact on its sustainability (Jacobsen et al. 2021). If it is captured, it is released as it is a protected species in all Australian Commonwealth waters since 2015 when it was listed as a migratory species under the *Environment Protection and Biodiversity Conservation Act 1999*, and is protected in West Australian waters. The species would receive refuge in the network of marine parks across its range (Parks Australia 2023).

Habitat and biology

The Giant Devilray is pelagic in coastal and offshore waters from the surface to a depth of 1,112 m but mostly in depths less than 50 m (Stevens et al. 2018, Marshall et al. 2020). Maximum size is 520 cm disc width (DW) and maximum age estimated to 20 years (Cuevas-Zimbrón et al. 2013, Pardo et al. 2016, Notarbartolo di Sciara et al. 2020). Males mature at 200–220 cm DW (age-at-maturity unknown) and females at 5–6 years and 215–240 cm DW (Cuevas-Zimbrón et al. 2013, Pardo et al. 2016, Marshall et al. 2020). Litter size is one large pup (90–160 cm DW) and occasionally two, born every 1–3 years (Stevens et al. 2018, Marshall et al. 2020).

Longevity and maximum size	Longevity: estimated 20 years Max size: 350 cm DW
Age and/or size at maturity (50%)	Males: 200–220 cm DW Females: 5–6 years, 215–240 cm DW

CAAB Code: 37 041002

Link to IUCN Page: <https://www.iucnredlist.org/species/110847130/176550858>

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

References

- Cuevas-Zimbrón, E., Sosa-Nishizaki, O., Pérez-Jiménez, J. and O'Sullivan, 2013. An analysis of the feasibility of using caudal vertebrae for ageing the spinetail devilray, *Mobula japonica* (Müller and Henle, 1841). *Environmental Biology of Fishes* 96(8): 907–914.
- Harry, A.V., Tobin, A.J., Simpfendorfer, C.A., Welch, D.J., Mapleston, A., White, J., Williams, A.J. and Stapley, J. 2011. Evaluating catch and mitigating risk in a multispecies, tropical, inshore shark fishery within the Great Barrier Reef World Heritage Area. *Marine and Freshwater Research* 62: 710–721.
- Jacobsen, I., Walton, L., Pidd, A. and Lawson, A. 2021. East Coast Inshore Fishery-Large Mesh Gillnets (Gillnets & Ring Nets). Level 2 Ecological Risk Assessment. Species of Conservation Concern. 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., 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.
- Notarbartolo di Sciara, G., Stevens, G. and Fernando, D. 2020. The giant devil ray *Mobula mobular* (Bonaterre, 1788) is not giant, but it is the only spinetail devil ray. *Marine Biodiversity Records* 13(4): s41200–020–00187–0.

- Marshall, A., Barreto, R., Carlson, J., Fernando, D., Fordham, S., Francis, M.P., Herman, K., Jabado, R.W., Liu, K.M., Rigby, C.L. and Romanov, E. 2020. *Mobula mobular* (amended version of 2019 assessment). *The IUCN Red List of Threatened Species* 2020: e.T110847130A176550858.
- Pardo, S.A., Kindsvater, H.K., Cuevas-Zimbrón, E., Sosa-Nishizaki, O., Pérez-Jiménez, J.C. and Dulvy, N.K. 2016. Devil in the details: Growth, productivity, and extinction risk of a data-sparse devil ray. *Scientific reports* 6(33745): DOI: 10.1101/043885.
- Parks Australia 2023. Australian Marine Parks. <https://parksaustralia.gov.au/marine/parks/>
- Stevens, G., Fernando, D., Dando, M. and Notarbartolo di Sciara, G. 2018. *Guide to Manta & Devil Rays of the World*. Wild Nature Press, Plymouth.