Narrow Sawfish, *Anoxypristis cuspidata*

Report Card assessment	**Depleting**		
IUCN Red List Australian Assessment	Vulnerable	IUCN Red List Global Assessment	Critically Endangered
Global Assessors	Haque, A.B., d'Anastasi, B. Dulvy, N., Faria, V., Fordham, S., Grant, M., Harry, A., Jabado, R., Lear, K., Morgan, D.L., Tanna, A., Wakhida, Y. & R. Charles, R.		
Australian Assessors	Kyne, P.M., Heupel, M.R., White, W.T., Simpfendorfer, C.A. (Shark Action Plan) & Rigby, C.L.		
Report Card Remarks	Significant historical population declines and now protected in Australia but still susceptible to capture. Listed on EPBC Act (Migratory), CITES Appendix I, CMS Appendix I & II.		

Summary

The Narrow Sawfish is a benthopelagic ray in tropical estuarine, inshore, and offshore waters that now occurs patchily across the Indo-West Pacific. Historically, it occurred across the entire Indo-West Pacific; however, it is now possibly extinct in much of its former range due to intense exploitation and habitat degradation. Its toothed rostrum makes it highly susceptible to capture and it is retained (outside of Australia) for its valuable fins and rostrum, and for its meat. In Australia, it is the most frequently caught sawfish in Australian trawl and gillnet fisheries. The introduction of Bycatch Reduction Devices in trawl fisheries in the early 2000s, have reduced catches of the Narrow Sawfish by up to 73%. It was protected in all Australian Commonwealth waters as a migratory species under the EPBC Act in 2015 and is protected in state and Territory waters, yet it is still susceptible to capture, and has significant post-release mortality. This protection, management measures, and marine parks have reduced mortality over the past 10–20 years. However, declines have still occurred and it is suspected that the population has undergone 30–49% reduction over the past three generations (18 years). Therefore, the Narrow Sawfish is assessed as globally Critically Endangered (IUCN), and in Australia as Vulnerable (IUCN) (Kyne et al. 2021) and Depletimg (SAFS). The species is listed on CITES Appendix I and CMS Appendix I and II.

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Distribution

The Narrow Sawfish is now restricted to tropical eastern Arabian Seas, parts of Southeast Asia, Papua New Guinea and Australia (Haque et al. 2023). Historically, it occurred across the Indo-West Pacific including the Arabian Seas and is now possibly extinct in parts of its Indian and Southeast Asian range (Last et al. 2016, Haque et al. 2023). In Australia, it has a wide range and is found from Rockhampton (Queensland) to the Pilbara coast (Western Australia) (Haque et al. 2023).

Stock structure and status

The Narrow Sawfish has undergone large scale population declines, range contraction, and possible regional extinction in the Indo-West Pacific outside of Australia, probably prior to the 2000s (Haque et al. 2023). In Australia, significant population declines, although largely unquantified, also likely occurred prior to the 2000s due to gillnet and trawl fisheries pressure (Kyne et al. 2021, Haque et al. 2023). Genetic stocks of the Narrow Sawfish exist on the east and west coasts, with the Gulf of Carpentaria likely forming a third stock (d'Anastasi 2010, Green 2018). The Narrow Sawfish is the most frequently caught sawfish in Australian trawl and gillnet fisheries and has significant capture and post-release mortality (Field et al. 2013, Kyne et al. 2021). Management measures and protection has reduced mortality over the last 10–20 years. However, declines have still occurred and it is suspected that the population has undergone 30–49% reduction in the last 18 years (3 generation lengths) across its Australian range (Kyne et al. 2021, Haque et al. 2023).

Fisheries

The Narrow Sawfish is incidentally caught in fisheries, with its rostrum making it highly susceptible to entanglement in gillnet and trawl fisheries and outside Australia, it is retained for its valuable fins and rostrum, and for its meat (Haque et al. 2023). In Australia, it is an incidental catch of the Commonwealth Northern Prawn Fishery and state and territory trawl and gillnet fisheries (Kyne et al. 2021). Gillnet fisheries that are likely, or known, to interact with Narrow Sawfish including the Queensland East Coast Inshore Fishery and Gulf of Carpentaria Inshore Fishery (Peverell 2005, Harry et al. 2011), Northern Territory Barramundi Fishery and Offshore Net and Line Fishery (Field et al. 2013), and the Kimberley Gillnet and Barramundi Fishery (Braccini et al. 2021). Prawn trawl fisheries known, or suspected, to interact with Narrow Sawfish include the Queensland East Coast Trawl Fishery (Pears et al. 2012), Commonwealth Northern Prawn Fishery (NPF) (Sporcic et al. 2021a), and smaller prawn fisheries in Western Australia (WA) (Braccini et al. 2021). The species is also encountered in fish trawl fisheries in northern Australia such as the Northern Territory Demersal Fishery and Pilbara Fish Trawl Fishery (DPIR 2017, Braccini et al. 2021). Bycatch reduction devices (BRDs) have been mandated in most of these trawl fisheries since the early-mid 2000s and reduce the catch of the Narrow Sawfish by 73% (though sample size was limited) (Brewer et al. 2006). The Narow Sawfish is assessed as at high risk in the NPF due to its susceptibility to capture, high post-capture mortality estimates, and distinct genetic stocks affecting replenishment of potentially locally depleted stocks (Sporcic et al. 2021a, b). It became a protected species in all Australian Commonwealth waters when it was listed as Migratory in 2015 under the *Environment Protection and Biodiversity Conservation Act 1999* and is also protected in state and Territory waters. Mortality may still be high however if they are caught, as they have significant capture and post-release mortality, and also may be killed or have the rostrum removed for extraction from the fishing gear (Field et al. 2013, Morgan et al. 2016). Despite this, protection and management, such as spatial gillnet and other fishery closures, and marine parks, have reduced mortality over the past 10–20 years (Kyne et al. 2021).

Habitat and biology

The Narrow Sawfish is benthopelagic in estuarine, inshore, and offshore waters on the continental shelf at depths of 0–128 m, but often at 0–40 m (Weigmann 2016, Kyne et al. 2021). Maximum size is generally 350 cm total length (TL) but it has been estimated up to approximately 448 cm TL in Papua New Guinea (White et al. 2017). Maximum age is estimated at 9 years (Peverell 2009, Weigmann 2016, White et al. 2017). Males mature at 2 years and 200 cm TL and females at 3 years and 225 cm TL and (Peverell 2009, Last et al. 2016). Litter size is estimated to be 5-16 pups (Dulvy et al. 2016).

Longevity and maximum size	Longevity: 9 years Max size: ~448 cm TL
Age and/or size at maturity (50%)	Males: 2 years, 200 cm TL Females: 3 years, 225 cm TL

CAAB Code: 37 025002

Link to IUCN Page: https://www.iucnredlist.org/species/39389/141789456

Link to page at Shark References: https://shark-references.com/species/view/Anoxypristis-cuspidata

References

Braccini, M., Kangas, M., Jaiteh, V. and Newman, S. 2021. Quantifying the unreported and unaccounted domestic and foreign commercial catch of sharks and rays in Western Australia. Ambio 50(7), 1337–1350.

Brewer, D., Heales, D., Milton, D., Dell, Q., Fry, G., Venables, B. and Jones, P. 2006. The impact of turtle excluder devices and bycatch reduction devices on diverse tropical marine communities in Australia's northern prawn trawl fishery. *Fisheries Research* 81(2-3), 176–88.

d'Anastasi, B.R. 2010. Conservation genetics of the critically endangered narrow sawfish (*Anoxypristis cuspidata*) in northern Australia. James Cook University.

Department of Primary Industry and Resources (DPIR) 2017. NT offshore snapper fisheries ecological risk assessment. Northern Territory Government.

Dulvy, N. K., Davidson, L. N., Kyne, P. M., Simpfendorfer, C. A., Harrison, L. R., Carlson, J. K. and Fordham, S. V. 2016. Ghosts of the coast: global extinction risk and conservation of sawfishes. Aquatic Conservation: Marine and Freshwater Ecosystems, 26(1), 134–153.

Field, I. C., Tillett, B. J., Charters, R., Johnson, G. J., Buckworth, R. C., Meekan, M. G. and Bradshaw, C. J. 2013. Distribution, relative abundance and risks from fisheries to threatened *Glyphis* sharks and sawfishes in northern Australia. *Endangered Species Research*, 21(2), 171–180.

Haque, A.B., d'Anastasi, B. Dulvy, N., Faria, V., Fordham, S., Grant, M., Harry, A., Jabado, R., Lear, K., Morgan, D.L., Tanna, A., Wakhida, Y. and R. Charles, R. 2023. *Anoxypristis cuspidata*. *The IUCN Red List of Threatened Species* 2023.

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.

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.

Morgan, D.L., Wueringer, B.E., Allen, M.G., Ebner, B.C., Whitty, J.M., Gleiss, A.C. and Beatty, S.J. 2016. What is the fate of amputee sawfish? Fisheries 41(2): 71–73.

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.

Peverell, S.C. 2005. Distribution of sawfishes (Pristidae) in the Queensland Gulf of Carpentaria, Australia, with notes on sawfish ecology. *Environmental Biology of Fishes* 73: 391–402.

Peverell, S. C. 2009. *Sawfish (Pristidae) of the Gulf of Carpentaria, Queensland, Australia*. MSc thesis. School of Marine Biology, James Cook University

Sporcic, M., Donovan, A., Van Der Velde, T., Fuller, M., Fry, G. 2021a. *Ecological Risk Assessment for the Effects of Fishing*. R*eport for Northern Prawn Fishery: Tiger Prawn sub-fishery 2013- 2017.* Report for the Australian Fisheries Management Authority. 282 p.

Sporcic, M., Donovan, A., Van Der Velde, T., Fuller, M., Fry, G. 2021b. *Ecological Risk Assessment for the Effects of Fishing. Report for Northern Prawn Fishery: Banana Prawn sub-fishery 2013- 2017*. Report for the Australian Fisheries Management Authority. 226 p.

Weigmann, S. 2016. Annotated checklist of the living sharks, batoids and chimaeras (Chondrichthyes) of the world, with a focus on biogeographical diversity. *Journal of Fish Biology* 88(3): 837–1037.

White, W.T., Appleyard, S. A., Kyne, P. M. and Mana, R. R. 2017. Sawfishes in Papua New Guinea: a preliminary investigation into their status and level of exploitation. *Endangered Species Research*, 32, 277–291.