

Blue lines indicate the area meeting the ISRA Criteria; dashed lines indicate the suggested buffer for use in the development of appropriate place-based conservation measures. Buffers for freshwater areas are determined based on hydroBASINS to capture watershed boundaries.

NORMAN RIVER ISRA

Australia and Southeast Indian Ocean Region

SUMMARY

Norman River is located on western Cape York, Queensland, Australia. It encompasses the Norman River and part of the Gulf of Carpentaria coast with an adjacent estuary (Bronco's Inlet) to the east. The area is characterised by the long Norman estuary, with extensive mangroves confined to a narrow fringe along the inter-tidal mud banks. The area is influenced by diurnal tides, high turbidity, fast current speeds, and a large freshwater input during the monsoon season. This area overlaps with the Gulf Plains Key Biodiversity Area. Within the area there are: **threatened species** (e.g., Largetooth Sawfish *Pristis pristis*) and **reproductive areas** (e.g., Narrow Sawfish *Anoxypristis cuspidata*).

CRITERIA

Criterion A - Vulnerability; Sub-criterion C1 - Reproductive Areas

— AUSTRALIA —

— 0-10 metres —

— 46.83 km² —





DESCRIPTION OF HABITAT

Norman River is located on western Cape York, Queensland, Australia. It is situated in the Aboriginal Country of the Gkuthaarn and Kukatji People, and Aboriginal Country of the Kurtijar People, represented by Carpentaria Land Council Aboriginal Corporation. It encompasses the Norman River and its estuary, and part of the mangrove coast with an adjacent estuary (Bronco's Inlet) to the east. This river system extends for about 420 km and enters the southern Gulf of Carpentaria, with a catchment area of approximately 46,000 km² (Wolanski & Chappell 1996). The area is characterised by a 68 km long estuary, with extensive mangroves confined to a narrow fringe along the inter-tidal mud banks (Salini et al. 1998).

The area is influenced by diurnal tides that can penetrate the river up to 60 km from the mouth (Wolanski & Chappell 1996; Salini et al. 1998). It has high turbidity, fast current speeds, deep open water channels, and receives a large freshwater input during the monsoon season (November to May) (Salini et al. 1998).

This area overlaps with the Gulf Plains Key Biodiversity Area (KBA 2025).

This Important Shark and Ray Area is benthic and pelagic and is delineated from inshore and surface waters (0 m) to 10 m depth based on the bathymetry in the area.

ISRA CRITERIA

CRITERION A – VULNERABILITY

Two Qualifying Species considered threatened with extinction according to the IUCN Red List of Threatened Species regularly occur in the area. These are the Critically Endangered Narrow Sawfish (Haque et al. 2023) and Largetooth Sawfish (Espinoza et al. 2022).

SUB-CRITERION C₁ – REPRODUCTIVE AREAS

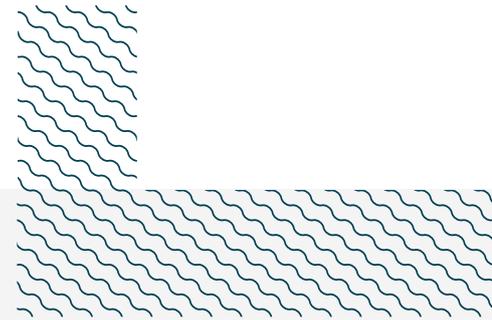
Norman River is an important reproductive area for two ray species.

During 2015 and between 2017–2019, annual nine-day sampling trips in the Norman River basin were conducted during the dry season in July (2017), August (2018), September (2019), and November (2015, 2018; SARA unpubl. data 2025; BE Wueringer unpubl. data 2025). Gillnets (up to 50 m length) were set for up to six days per field trip, with three sets per day. In total, 53 nets were deployed for a total of 214.7 hrs, with a mean soak time of 4.10 ± 2.10 hrs per set (BE Wueringer unpubl. data 2025). Drumlins were also used, with 68 lines deployed for a total of 226.3 hrs and a mean soak time of 3.50 ± 1.40 hrs per set. Both tidal and non-tidal waters were also sampled using 35 hand lines, with a mean soak time of 1.50 ± 0.80 hrs and a total effort of 52 hrs. All specimens captured were measured (total length; TL) and sexed. Additionally, between 2016–2025, citizen science records (n = 52) from recreational fishers and locals, including photos, capture details, species identification, and TL (either reported directly or estimated using rostrum morphometrics), were collected during the wet season (Biskis et al. 2025; SARA 2025).

Historical records (2002) reported a sexually mature female Largetooth Sawfish measuring 582 cm TL and carrying full-term embryos captured in the Norman River by commercial gillnet fishers (M McDavitt pers. comm. 2002). Between 2015–2023, a total of 19 Largetooth Sawfish were captured or observed in the area from the river mouth to more than ~60 km upstream (SARA 2025; BE Wueringer

unpubl. data 2025). Of these, eight (23.3%) were YOY Largetooth Sawfish, ranging in size between 70-130 cm TL (BE Wueringer unpubl. data 2025). Animals were captured during field surveys (n = 3) in 2015, 2019, and 2022, and submitted through citizen science (n = 5) with size information in 2018, 2021, and 2022 (SARA 2025; BE Wueringer unpubl. data 2025). Size-at-birth of the species is 72-91 cm TL and YOY sizes are estimated at <130 cm TL based on growth curves (Peeverell 2009). All records occurred between March–November, which is likely due to lower accessibility during the wet season (December–March). The area is also important for juvenile Largetooth Sawfish with 10 individuals captured in total, and eight within the area ranging in size between 148–263 cm TL either captured in field surveys (n = 1), or from citizen science submissions with size information (n = 9; BE Wueringer unpubl. data 2025). Since Largetooth Sawfish leave rivers only upon reaching sexual maturity (Peeverell 2009), the presence of YOY and juveniles indicates that Norman River is an important reproductive area for the species. Based on this monitoring effort across several rivers and estuaries, this area, together with the Mitchell-Palmer-Walsh Rivers, holds the largest contemporary records of YOY Largetooth Sawfish on the east coast of the Gulf of Carpentaria (BE Wueringer unpubl. data 2025).

Between 2010–2021, a total of seven neonate and YOY Narrow Sawfish were captured or reported in the area ranging in size between 79–150 cm TL (BE Wueringer unpubl. data 2025; SARA 2025). Size-at-birth of the species is 43–70 cm TL (Last et al. 2016) and YOY sizes are estimated at <150 cm TL, based on growth curves (Peeverell 2009). Individuals were captured and reported by citizen science in 2016, 2019, 2020, and 2021 (SARA 2025). An additional three immature Narrow Sawfish (168–200 cm TL) were reported in 2018 and 2022 (SARA 2025; BE Wueringer unpubl. data 2025). While no adults were captured or reported during these field efforts, Narrow Sawfish have been regularly captured offshore of this area in commercial fisheries between 1984–2025. Size data for these fishery captures are not available, but adults of this species are typically found offshore in the Gulf of Carpentaria, whereas nursery habitats occur in estuaries and adjacent coastal waters (Peeverell 2005). The area holds the second highest number of records for neonate and YOY Narrow Sawfish on the east coast of the Gulf of Carpentaria, highlighting the importance of this area for early life-stages.



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We acknowledge the Traditional Owners of Country throughout Australia, in particular the Gkuthaarn, Kukatji, and Kurtijar People, and recognise the continuing connection to land, waters, and culture. We pay our respects to Elders past, present, and emerging.

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QUALIFYING SPECIES

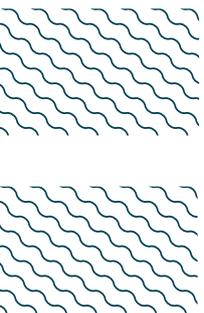
Scientific Name	Common Name	IUCN Red List Category/ EPBC Act	Global Depth Range (m)	ISRA Criteria/Sub-criteria Met								
				A	B	C1	C2	C3	C4	C5	D1	D2
RAYS												
<i>Anoxypristis cuspidata</i>	Narrow Sawfish	CR	0-128	X		X						
<i>Pristis pristis</i>	Largetooth Sawfish	CR/EN	0-60	X		X						

SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
SHARKS		
<i>Carcharhinus leucas</i>	Bull Shark	VU
<i>Eusphyra blochii</i>	Winghead Shark	CR
RAYS		
<i>Urogymnus dalyensis</i>	Freshwater Whipray	LC

IUCN Red List of Threatened Species Categories are available by searching species names at www.iucnredlist.org. Abbreviations refer to: CR, Critically Endangered; EN, Endangered; VU, Vulnerable; NT, Near Threatened; LC, Least Concern; DD, Data Deficient.

Australian Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) categories are available at: <https://www.dcceew.gov.au/environment/epbc/our-role/approved-lists>. Abbreviations refer to: CR, Critically Endangered; EN, Endangered; VU, Vulnerable; CD, Conservation Dependent.



SUPPORTING INFORMATION

There are additional indications that Norman River is a potential reproductive area for two shark species

Between 2015-2019, six Bull Sharks ranging in size between 60-108 cm TL (average = 77.2 cm TL) were captured during field surveys in the area more than 40 km upstream from the river mouth (BE Wueringer unpubl. data 2025). Of these, 5 (83.3%) were neonates and YOY ranging in size between 60-80 cm TL (BE Wueringer unpubl. data 2025). Size-at-birth of the species is 56-81 cm TL (Ebert et al. 2021) and YOY showing umbilical scars of up to 99 cm have been captured in the region (Pillans et al. 2020). These life stages were captured in November in 2015 (n = 1) and 2018 (n = 5; BE Wueringer unpubl. data 2025). The remaining individual was a juvenile (108 cm TL) and was captured in 2018 (BE Wueringer unpubl. data 2025). Further information is required to confirm the importance of the area for this species.

In November 2018, six Winghead Sharks ranging in size between 42-85 cm TL (average = 66.5 cm TL) were captured during the only gillnet set placed at the river mouth in the area (BE Wueringer unpubl. data 2025). Of these, two (33%) were neonate/YOY ranging in size between 42-43 cm TL (BE Wueringer unpubl. data 2025). Size-at-birth of the species is 32-45 cm TL (Ebert et al. 2021) and YOY are estimated up to 70-75 cm TL (Smart et al. 2013). The remaining individuals (n = 4) were small juveniles (76-85 cm TL; BE Wueringer unpubl. data 2025). In 2020, two additional YOY were captured in the same area by recreational fishers ranging in size 60-70 cm TL (visually estimated; FishBrain 2020). Further information is required to confirm the importance of the area for this species.



REFERENCES

- Biskis VN, Townsend KA, Morgan DL, Lear KO, Holmes BJ, Wueringer BE. 2025.** Fine-tuning established morphometric models through citizen science data. *Conservation Science and Practice* 7: e13308. <https://doi.org/10.1111/csp2.13308>
- Ebert DA, Dando M, Fowler S. 2021.** *Sharks of the world: A complete guide*. Princeton: Princeton University Press.
- Espinoza M, Bonfil R, Carlson J, Charvet P, Chevis M, Dulvy NK, Everett B, Faria V, Ferretti F, Fordham S, et al. 2022.** *Pristis pristis* (errata version published in 2025). *The IUCN Red List of Threatened Species* 2022: e.T18584848A58336780. <https://dx.doi.org/10.2305/IUCN.UK.2022-2.RLTS.T18584848A249880242.en>
- FishBrain. 2020.** FishBrain sightings. Available at: <https://fishbrain.com/> Accessed September 2025.
- Haque AB, Charles R, D'Anastasi B, Dulvy NK, Faria V, Fordham S, Grant MI, Harry AV, Jabado RW, Lear KO, et al. 2023.** *Anoxypristis cuspidata*. *The IUCN Red List of Threatened Species* 2023: e.T39389A58304073. <https://dx.doi.org/10.2305/IUCN.UK.2023-1.RLTS.T39389A58304073.en>
- Key Biodiversity Areas (KBA). 2025.** Key Biodiversity Areas factsheet: Gulf Plains. Available at: <https://www.keybiodiversityareas.org/site/factsheet/23871> Accessed September 2025.
- Last PR, White WT, de Carvalho MR, Séret B, Stehmann MFW, Naylor GJP. 2016.** *Rays of the world*. Clayton South: CSIRO Publishing.
- Peverell SC. 2005.** Distribution of sawfishes (Pristidae) in the Queensland Gulf of Carpentaria, Australia, with notes on sawfish ecology. *Environmental Biology of Fishes* 73: 391-402. <https://doi.org/10.1007/s10641-005-1599-8>
- Peverell SC. 2009.** Sawfish (Pristidae) of the Gulf of Carpentaria, Queensland, Australia. Unpublished PhD Thesis, James Cook University, Townsville.
- Pillans RD, Fry GC, Steven ADL, Patterson T. 2020.** Environmental influences on long-term movement patterns of a euryhaline elasmobranch (*Carcharhinus leucas*) within a subtropical estuary. *Estuaries and Coasts* 43: 2152-2169. <https://doi.org/10.1007/s12237-020-00755-8>
- Salini JP, Brewer DT, Blaber SJM. 1998.** Dietary studies on the predatory fishes of the Norman River Estuary, with particular reference to penaeid prawns. *Estuarine, Coastal and Shelf Science* 46: 837-847. <https://doi.org/10.1006/ecss.1997.0319>
- Sharks and Rays Australia (SARA). 2025.** Sharks And Rays Australia database. Available at: www.cytags.com Accessed September 2025.
- Smart JJ, Harry AV, Tobin AJ, Simpfendorfer CA. 2013.** Overcoming the constraints of low sample sizes to produce age and growth data for rare or threatened sharks. *Aquatic Conservation: Marine and Freshwater Ecosystems* 23: 124-134. <https://doi.org/10.1002/aqc.2274>
- Wolanski E, Chappell J. 1996.** The response of tropical Australian estuaries to a sea level rise. *Journal of Marine Systems* 7: 267-279. [https://doi.org/10.1016/0924-7963\(95\)00002-X](https://doi.org/10.1016/0924-7963(95)00002-X)