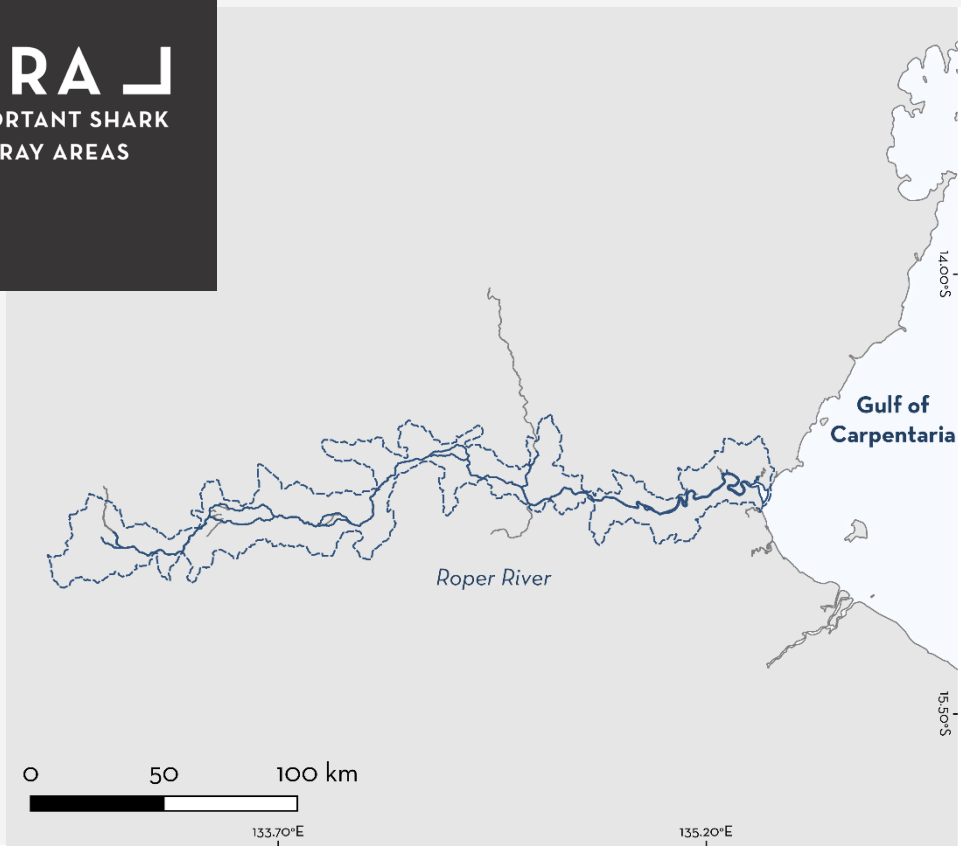
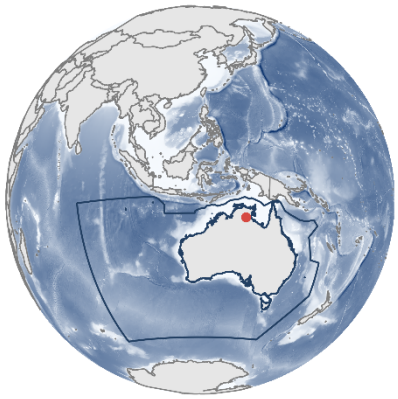
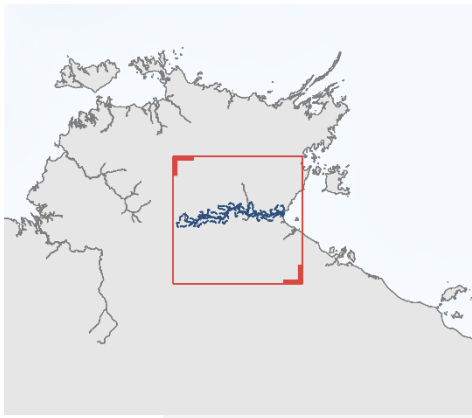
ISRA
IMPORTANT SHARK AND RAY AREAS







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.

ROPER RIVER ISRA

Australia and Southeast Indian Ocean Region

AUSTRALIA

0–21 metres

264.4 km²

SUMMARY

Roper River is located in the Northern Territory, Australia. This large perennial river system flows into the southwest corner of the Gulf of Carpentaria. The area extends from the river mouth and estuarine lower reaches to upper reaches, ~360 km inland. It is characterised by mangroves and mudflats in the estuary and lower reaches, to gravel, coarse sandy, and rocky substrates in middle-upper reaches. The area is a highly dynamic environment influenced by monsoonal wet-dry seasons and tidal cycles. Within this area there are: **threatened species** (e.g., Speartooth Shark *Glyphis glyphis*); and **reproductive areas** (e.g., Largetooth Sawfish *Pristis pristis*).

CRITERIA

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

DESCRIPTION OF HABITAT

Roper River is located in the Northern Territory, Australia. This large perennial river system flows into the southwest corner of the Gulf of Carpentaria. The area extends from the river mouth and estuarine lower reaches to upper reaches at the Roper River's confluence with the Waterhouse River (near Mataranka; ~360 km inland) and includes the lower reaches of the Baghetti (Wilton) River, a major tributary. The Roper River catchment area is ~77,400 km^2 (Watson et al. 2023). The habitats that characterise this area are diverse, ranging from mangroves and mudflats in the estuary and lower reaches, to gravel, coarse sandy, and rocky substrates in middle-upper reaches (Watson et al. 2023; Constance et al. 2024a). Some mid-upper reaches are heavily braided, comprising multiple channels.

The hydrology is characteristic of monsoonal northern Australia with a seasonal wet-dry cycle and ~90% of annual rainfall occurring in the wet season (roughly November–April; Faulks 2001; Petheram et al. 2008). River height is subsequently highly dynamic, peaking during seasonal flooding. During the dry season, the main channel of the river is maintained by groundwater input (Watson et al. 2023). Lower reaches are heavily influenced by tides with tidal influence in the river extending to Roper Bar, ~130 km inland (Watson et al. 2023). Salinity varies seasonally, with the estuary and lower reaches dominated by marine waters in the dry season and freshwater in the wet season following flood events. The Roper River is of hydrological and ecological significance given its perennial nature, which is rare in northern Australian rivers, and its unregulated flows (Watson et al. 2023).

This Important Shark and Ray Area is benthic and pelagic and is delineated from inshore and surface waters (0 m) to 21 m based on the depth range of Qualifying Species in the area.

ISRA CRITERIA

CRITERION A – VULNERABILITY

Three 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 Largetooth Sawfish (Espinoza et al. 2022), and the Vulnerable Bull Shark (Rigby et al. 2021) and Speartooth Shark (Kyne et al. 2021).

SUB-CRITERION C1 – REPRODUCTIVE AREAS

Roper River is an important reproductive area for two shark and one ray species.

Surveys for euryhaline sharks and rays were conducted in the mid reaches of the Roper River in October–November 2016 and October 2017 and in the lower reaches in September 2023, November 2023, October 2024, and November 2024, coinciding with the accessibility of the river and the suspected presence of river sharks in riverine habitats (Constance et al. 2024a; JM Constance et al. unpubl. data 2024). The 2016–2017 surveys primarily targeted Largetooth Sawfish with 29 or 58 m long gillnets (4–6-inch mesh size), rod-and-line, and handline, while the 2023–2024 surveys targeted Speartooth Sharks with rod-and-line in highly turbid brackish waters of lower river reaches. Total length (TL) was measured for each individual.

Traditional Owners have long-term local ecological knowledge of the occurrence of early life-stage Bull Sharks throughout Roper River (Yugul Mangi Rangers pers. obs. 2025). Early life-stage Bull Sharks were caught incidentally during euryhaline shark and ray surveys (Constance et al. 2024a; JM Constance et al. unpubl. data 2024). The size-at-birth for the species is 56–81 cm TL and young-of-

the-year (YOY) can be up to 99 cm TL (Pillans et al. 2020; Ebert et al. 2021). Between 2016–2024, a total of 85 Bull Sharks were caught, ranging in size 65.5–139.5 cm TL (mean ± standard deviation = 82.8 ± 15.0 cm TL) and comprised 56 neonates (65.9%), 19 YOY (22.4%), and 10 juveniles (11.8%). Early life-stages (neonates and YOY combined; n = 75) represented 88.2% of Bull Sharks and were caught in October–November 2016 (n = 23), October 2017 (n = 4), September 2023 (n = 2), October 2024 (n = 31), and November 2024 (n = 15) (Constance et al. 2024a; JM Constance et al. unpubl. data 2024). Bull Sharks have been encountered in the area from lower estuarine reaches of the river upstream to inland braided sections (Constance et al. 2024a).

Bull Sharks in Australia remain in river and estuary habitats for up to five years (Werry et al. 2011; Niella et al. 2022), highlighting that juveniles, in addition to neonates and YOY, are still largely restricted to the area, with the larger juveniles potentially making some movements into adjacent marine waters (Smoothey et al. 2023). Although there are numerous rivers across northern Australia that also regularly host early life-stage Bull Sharks, these river systems are individually important. Bull Sharks in Australia display natal philopatry, with females returning to particular river systems to pup (Tillett et al. 2012; Lubitz 2023). For example, half-sibling pairs were found within a river on Australia's east coast up to seven cohorts apart, highlighting the long-term natal philopatry of females (Lubitz 2023). Therefore, individual rivers, such as this area, represent discrete portions of habitat that are important to Bull Sharks.

A total of 105 Speartooth Sharks were caught during targeted surveys in 2023–2024 (Constance et al. 2024a; JM Constance et al. unpubl. data 2024). The size-at-birth for the species is 50–65 cm TL (Pillans et al. 2009) and age-and-growth estimates give a maximum size threshold of 75 cm TL for YOY (Kyne et al. 2026). Sharks ranged 53.5–140.0 cm TL (mean ± standard deviation = 84.9 ± 22.8 cm TL) and comprised 33 neonates (31.4%), 3 YOY (2.9%), and 69 juveniles (65.7%; 1–6 years old). Early life-stages (neonates and YOY combined; n = 36) represented 34.3% of sharks and were sampled during all four surveys in September 2023 (n = 2), November 2023 (n = 10), October 2024 (n = 8), and November 2024 (n = 16) (Constance et al. 2024a; JM Constance et al. unpubl. data 2023–2024). Speartooth Sharks were encountered in an ~66 km stretch of the lower reaches of the river characterised by highly turbid brackish tidal waters (Constance et al. 2024a). This habitat is dynamic and varies daily and seasonally due to the influence of tides and freshwater flow, with this specific habitat ranging from the river mouth to ~80 km upstream. It is unknown where females give birth as very few adult Speartooth Sharks have been observed (none in the Northern Territory), although an adult female tagged with a satellite tag outside of this area in the Wenlock River (Queensland) was recorded around the Roper River mouth in September–October, which corresponds with the pupping season for the species (Pillans et al. 2009; Constance et al. 2024a).

Juvenile life-stage Speartooth Sharks are habitat specialists of brackish, highly turbid waters of large tidal rivers and estuaries and remain in these habitats throughout their juvenile years. Each population (i.e., river system) is genetically distinct and reproductively isolated (Feutry et al. 2014, 2017). The Roper River population is also geographically isolated from the nearest populations in the Port Musgrave-Wenlock River-Ducie River system (Queensland) and Van Diemen Gulf (Northern Territory), each of which is distant by >1,000 km of coastline (Feutry et al. 2014, 2017; Constance et al. 2024a; PM Kyne et al. unpubl. data 2025). This highlights the importance of each breeding location across their limited geographic ranges (northern Australia and southern Papua New Guinea).

Traditional Owners have long-term local ecological knowledge of the regular and predictable occurrence of Largetooth Sawfish throughout Roper River (Yugul Mangi Rangers pers. obs. 2025). This includes knowledge of the presence of small (early life-stage) sawfish in the river (Yugul Mangi Rangers pers. obs. 2025). Records and observations range from lower reaches to the upstream extent of the area around Elsey National Park (Constance et al. 2024a; Yugul Mangi Rangers pers.

obs. 2025). Contemporary early life-stage records within the area where a size measurement or estimation is available include a neonate of 87 cm TL captured in April 2023 (downstream of Ngukurr), and YOY of 103 cm TL in October 2017 (Roper Bar), 100 cm TL in May 2021 (lower river reaches), 109 cm TL in October 2021 (Ngukurr), and ~120 cm TL (visual estimation from photo; upstream braided river reaches) (Constance et al. 2024a; iNaturalist 2025). Size-at-birth of the species is 72–91 cm TL, and YOY are estimated to measure <130 cm TL based on growth curves (Peverell 2009). There are additional records from within the area without available size measurements (Constance et al. 2024a). Since Largetooth Sawfish leave rivers only upon reaching sexual maturity (Peverell 2009), the presence of early life-stages indicates that Roper River is a reproductive area for the species. Furthermore, Largetooth Sawfish display female philopatry with rivers representing genetically distinct and reproductively isolated systems (Phillips et al. 2011; Feutry et al. 2015).

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Julia M Constance (Charles Darwin University), Yugul Mangi Rangers (Northern Land Council), and Peter M Kyne (Charles Darwin University; IUCN SSC Shark Specialist Group – ISRA Project) contributed and consolidated information included in this factsheet. We thank all participants of the 2025 ISRA Region 08 – Australia and Southeast Indian Ocean workshop for their contributions to this process.

We acknowledge the Traditional Owners of Country throughout Australia 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
SHARKS												
Carcharhinus leucas	Bull Shark	VU	0–256	X		X						
Glyphis glyphis	Speartooth Shark	VU/CR	0–23	X		X						
RAYS												
Pristis pristis	Largetooth Sawfish	CR/EN	0–60	X		X						

SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
RAYS		
Anoxypristis cuspidata	Narrow Sawfish	CR
Glaucostegus typus	Giant Guitarfish	CR
Urogymnus dalyensis	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 the area may be an important reproductive area for one ray species.

Eighteen Freshwater Whiprays were caught during river shark surveys between 2023–2024. These mostly comprised large females (12 females; 6 males) of 87.0–129.5 cm disc width (DW) (mean ± standard deviation = 108.1 ± 11.4 cm DW). Four of these females were suspected to be pregnant, possibly pregnant, or having recently given birth, based on distended abdomens (Constance et al. 2024a; JM Constance et al. unpubl. data 2023–2024). There is little information available on the reproductive biology of this species, and this represents the only location with records of pregnant Freshwater Whiprays in the Northern Territory (Constance et al. 2024a, 2024b). Additional information is required to confirm the importance of the area for this species.

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