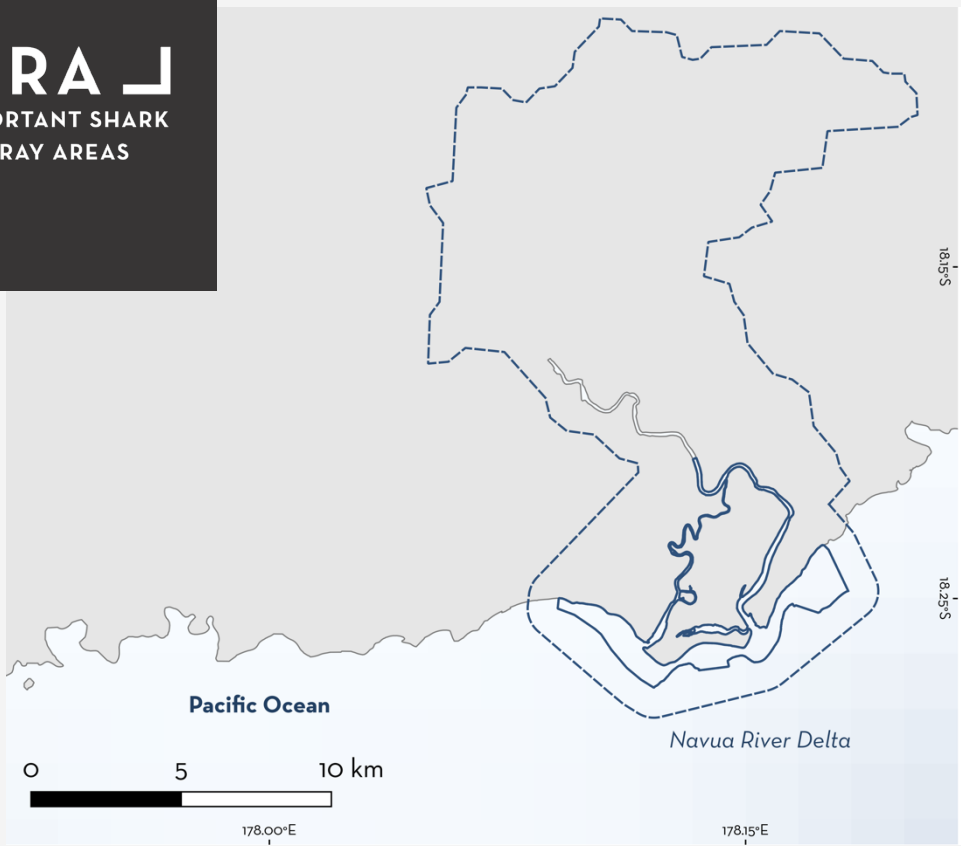
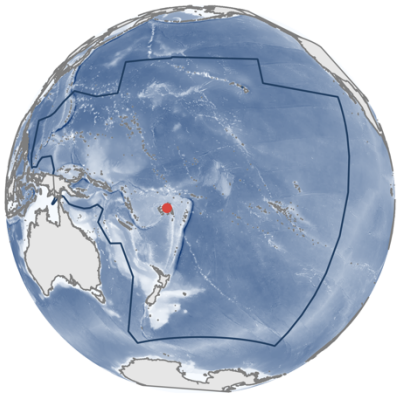
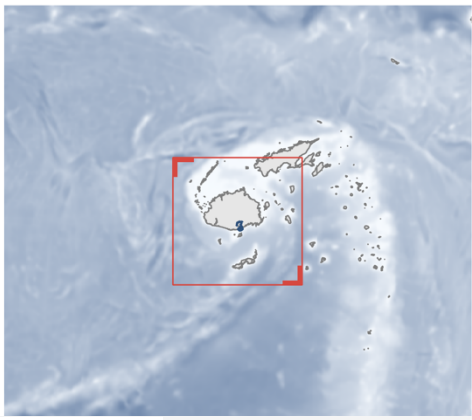
ISRA
IMPORTANT SHARK AND RAY AREAS







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

NAVUA RIVER DELTA ISRA

New Zealand & Pacific Islands Region

FIJI

0–256 metres

11.53 km²

SUMMARY

Navua River Delta is located on the southern coast of Viti Levu Island in Fiji. This area includes the lower reaches of the Navua River, a smaller tributary (Deuba River), and the river delta. The area is characterised by diverse habitats including mangroves, sandy beaches, soft-mud substrates, and coral reefs. The substrate is mainly a mixture of volcanic material (rocks and sediment), fine textured alluvium, and sandy coastal deposits. Within this area there are: **threatened species** and **reproductive areas** (Bull Shark *Carcharhinus leucas*).

CRITERIA

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

DESCRIPTION OF HABITAT

Navua River Delta is located on the south coast of Viti Levu Island in Fiji. The Navua River is the third largest river on the main island of Viti Levu and has a large delta with a broad river channel and large meanders (Terry et al. 2002). Geological assessments indicate that the Navua Delta consists of silts, sand, and gravel and is predominantly flat with residual hills (Davies 1990). Active erosion in the middle and upper reaches of the Navua River has caused rapid buildup of the bayhead delta. Consequently, the lower valley of the Navua River has high amounts of alluvium, with cycles of floodplain silt and fine sands overlying coarse sands and gravel channel-infill deposits (Davies 1990). The Navua River is subjected to river flooding, coastal flooding, and flash flooding. From the coast, there is a thin fringe of mangrove ecosystem around the river mouth and lower river, including along the Deuba River tributary (Merz 2000). Off the seaward side of the Navua River Delta there are coral reefs with various benthic fauna and algae inside the delta (Merz 2000).

This Important Shark and Ray Area is benthic and pelagic and is delineated from surface waters (0 m) to 256 m based on the global depth range of the Qualifying Species.

ISRA CRITERIA

CRITERION A – VULNERABILITY

One Qualifying Species considered threatened with extinction according to the IUCN Red List of Threatened Species regularly occurs in the area. This is the Vulnerable Bull Shark (Rigby et al. 2021).

SUB-CRITERION C1 – REPRODUCTIVE AREAS

Navua River Delta is an important reproductive area for one shark species.

Neonate and young-of-the-year (YOY) Bull Sharks are regularly captured in this area (Cardeñosa et al. 2016). Fishing surveys between 2014 and 2017 in the Navua River Delta captured 40 Bull Sharks, including three re-captures (Glaus et al. 2019). Most captures were neonates determined by the presence of an open (n = 20) or semi-healed (n = 7) umbilical scar. Animals were primarily captured in the austral summer, which aligns with the Bull Shark parturition season in Fiji (Glaus et al. 2019). Bull Sharks measured between 60–91 cm total length (TL) (Glaus et al. 2019). The size-at-birth for the species ranges between 56–81 cm TL (Ebert et al. 2021). Two YOY individuals with healed umbilical scars measuring 100 and 107 cm TL were captured in late June and early November 2016, respectively. In the Deuba River, a tributary of the Navua River, five neonate Bull Sharks were captured in the same fishing surveys (Glaus et al. 2019). Fisher reports and Traditional Ecological Knowledge show that Bull Sharks are captured up to 8 km upstream of the Navua River mouth. Descriptions of sharks caught in the river (rounded snout, grey-brown in colour, white underbelly) morphologically matched neonate or YOY Bull Shark whose presence in the river is ecologically sound (Cardeñosa et al. 2016). Additionally, this area is used by pregnant Bull Sharks. Two of the 15 pregnant Bull Sharks that were detected on passive acoustic receivers in four rivers on Viti Levu were tracked into the Navua River during three parturition seasons in 2016, 2017, and 2018 (Brunnschweiler et al. unpubl. data 2024). Collectively, these findings underscore the importance of the Navua River as a critical habitat for the Bull Shark's reproductive cycle.

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Natasha D Marosi (University of Exeter; Beqa Adventure Divers; Fiji Shark Lab), Kerstin Glaus (The University of the South Pacific), and Christoph A Rohner (IUCN SSC Shark Specialist Group – ISRA Project) contributed and consolidated information included in this factsheet. We thank all participants of the 2024 ISRA Region 10 – New Zealand and Pacific Islands workshop for their contributions to this process.

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QUALIFYING SPECIES

Scientific Name	Common Name	IUCN Red List Category	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						

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

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