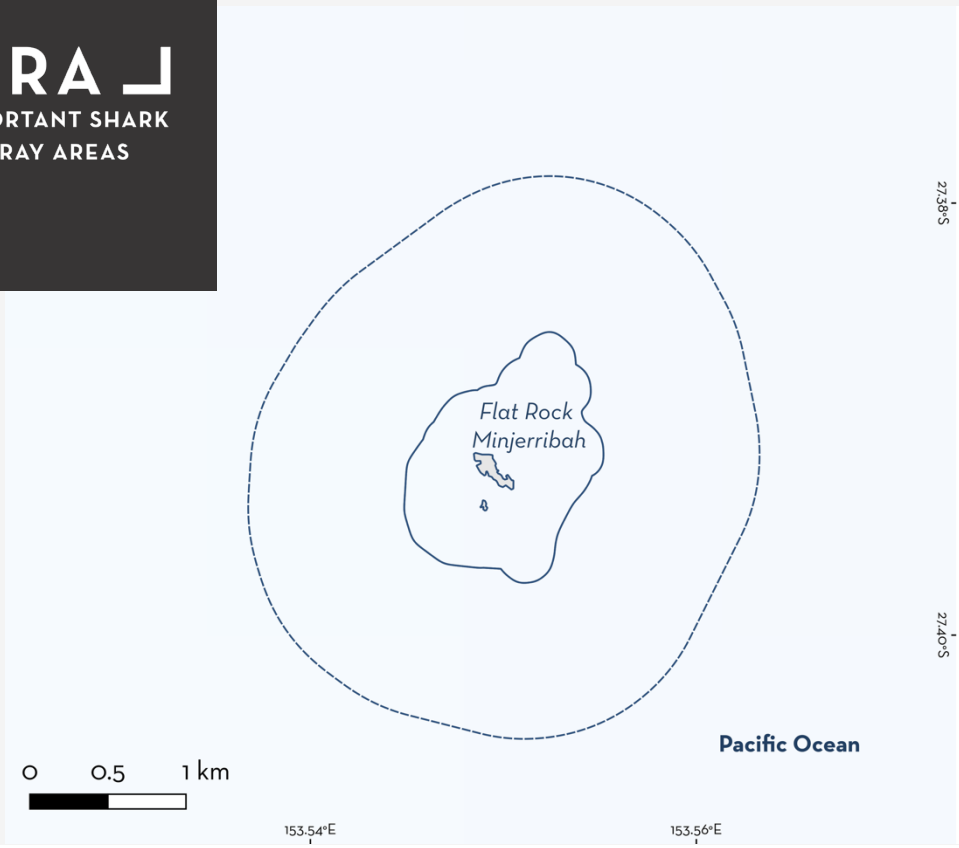
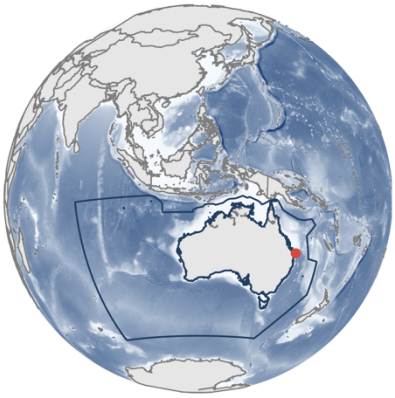
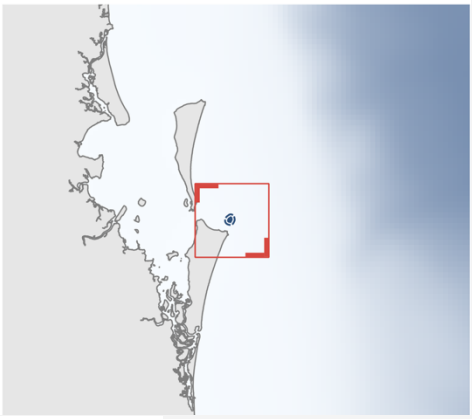
ISRA
IMPORTANT SHARK AND RAY AREAS







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

FLAT ROCK MINJERRIBAH ISRA

Australia and Southeast Indian Ocean Region

AUSTRALIA

0–40 metres

1.32 km²

SUMMARY

Flat Rock Minjerribah is located in southeast Queensland, Australia. The area is situated off North Stradbroke Island (Minjerribah). The habitat is characterised by rocky reefs, gutters, and sandy substrates. The area is influenced by seasonal fluctuations in the East Australian Current. The area overlaps with Moreton Bay Marine Park. Within the area there are: **threatened species** (e.g., Sand Tiger Shark *Carcharias taurus*); **resting areas** (Sand Tiger Shark); and **undefined aggregations** (e.g., Spotted Eagle Ray *Aetobatus ocellatus*).

CRITERIA

Criterion A – Vulnerability; Sub-criterion C3 – Resting Areas; Sub-criterion C5 – Undefined Aggregations

DESCRIPTION OF HABITAT

Flat Rock Minjerribah is located in southeast Queensland, Australia. The area is situated ~4 km off Point Lookout, North Stradbroke Island (Minjerribah). The habitat in the area is characterised by rocky reefs, gutters, and sandy substrates (Tourism & Events Queensland 2025). There are at least four popular dive sites within the area: The Nursery, Shark Alley, Turtle Caves, and Roaring Deep (Manta Lodge 2025). Shark Alley consists of two large sandy benthos channels running parallel to each other and separated by rocky reef and some adjoining channels.

The area is influenced by its proximity to the East Australian Current, the poleward flowing western boundary current of the South Pacific Gyre (Suthers et al. 2011). The East Australian Current flow is strongest in the austral summer, and the formation of eddies along this coastline also fluctuates seasonally (Ridgway & Hill 2009).

This area overlaps with Moreton Bay Marine Park (Queensland Government 2019).

This Important Shark and Ray Area is benthic and pelagic and is delineated from inshore and surface waters (0 m) to 40 m based on the bathymetry of 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 Sand Tiger Shark (Rigby et al. 2025) and the Endangered Spotted Eagle Ray (Finucci et al. 2024).

SUB-CRITERION C3 – RESTING AREAS

Flat Rock Minjerribah is an important resting area for one shark species.

There are multiple lines of evidence to support Sand Tiger Sharks regularly and predictably using Flat Rock Minjerribah for resting. Evidence includes scientific surveys and acoustic tracking (Bradford et al. 2025; Otway & Louden 2025), and anecdotal observations from the recreational dive industry. Between 2011–2021, 10-year acoustic transmitters were used to track sharks and determine their preferred habitats based on residency rates (Bradford et al. 2025), and this information was used to determine aggregation sites. Nineteen Sand Tiger Shark aggregation sites have been highlighted in eastern Australia (Bradford et al. 2025). Sand Tiger Shark aggregations were defined as a site where five or more Sand Tiger Sharks are seen aggregating either continuously or on a predictable seasonal cycle, and all were classified as resting areas for the species based on behavioural observations and habitat use.

Sand Tiger Sharks were detected at Flat Rock Minjerribah between June and December, with male sharks mainly detected from June to October, and females detected over two months in June and September (Otway & Louden 2025). Between 2011–2021, nine of the 31 tagged individuals were detected at Flat Rock Minjerribah and observed residence periods lasted up to 15 days (Bradford et al. 2025). Sand Tiger Sharks use Flat Rock Minjerribah as a resting area as part of their annual migration, with the sharks spending more time in the area during the daylight hours, exhibiting a diurnal usage pattern (Otway & Louden 2025). Scientific dive surveys confirmed Sand Tiger Sharks were observed swimming close to the seabed in the area, typical resting behaviour for this species, at a mean depth of 24.9 m (range 18.2–27.0 m). Tagged sharks predominantly swam in gutters near

the seabed and did not use shallower water depths at or near the sea-surface (Otway & Louden 2025). The diel patterns in behaviour that the sharks exhibit at these sites is characteristic of Sand Tiger Sharks resting during the day and being active at night (presumably for foraging) (D Harasti pers. comm. 2025). Hovering and milling are also characteristic behaviours of resting Sand Tiger Sharks and comprise the majority of swimming behaviours observed at their main aggregation sites on Australia's east coast (Smith et al. 2015). When hovering, sharks face into the water current and their tail beats allow them to maintain a stationary position, whereas milling involves slow movements and directional changes generally confined to a particular area within a gutter (Smith et al. 2015).

In addition, between 2013–2021, an acoustic study detected 22 Sand Tiger Sharks (14 males, 8 females) in the area (143,514 detections; Dwyer et al. 2023). Of these, 13 were tagged at Flat Rock Minjerribah (9 males, 4 females) and nine were tagged at Fish Rock in New South Wales (5 males, 4 females). Males used the area for resting for an average of 14.6 days (range = 59 min–59 days), whereas females used the area for an average of seven days per year (range = 38 min–37 days). The study concluded that Sand Tiger Shark seasonal residency in the area is for resting purposes either prior to the mating period (typically November and December; Bansemer & Bennett 2011) or for pregnant females as they move southward to pup (Dwyer et al. 2023).

Between 2018–2025, recreational dives were conducted in the area daily to weekly (D Fitzgerald & T Gray pers. obs. 2025). No formal records were collected from these recreational dives, however, anecdotal observations were made during the years these regular dives took place. Sand Tiger Sharks were observed on ~100% of dives between July–October, with occasional aggregations seen outside this period. On average, ~20 Sand Tiger Sharks are observed on a single 60-minute dive (range 5–40 individuals, depending on conditions and visibility). Sand Tiger Sharks are generally seen aggregating in the gutters around the Shark Alley dive site on the eastern side of the islet. They can be seen swimming slowly, close to the sandy substrates, a typical resting behaviour for this species (T Gray pers. obs. 2025).

SUB-CRITERION C5 – UNDEFINED AGGREGATIONS

Flat Rock Minjerribah is an important area for undefined aggregations of two ray species.

Between 2018–2025, daily or weekly recreational dives were conducted in the area (D Fitzgerald & T Gray pers. obs. 2025). No formal records were collected from these recreational dives, however, anecdotal observations were made during the years these regular dives took place.

Spotted Eagle Rays were observed on approximately 75% of dives year-round. On average, about six Spotted Eagle Rays are observed on a single 60-minute dive (range 3–20+ individuals per group, depending on conditions and visibility). Sightings are common at all dive sites in the area, however, aggregations tend to be larger off the northwestern side of the islet at the dive sites of Turtle Caves and Roaring Deep. Rays are generally observed swimming in aggregations in the current (T Gray pers. obs. 2025).

Australian Cownose Rays were observed on about 40% of dives between June–September, with occasional sightings outside this period. On average, aggregations of 20–30 Australian Cownose Rays are observed on a single 60-minute dive (range 10–<100 individuals in groups, depending on weather conditions and visibility). Aggregations are often observed swimming on the edge of the visibility range and are difficult to approach to assess the size of the aggregation (T Gray pers. obs. 2025).

More information is needed to understand the nature and functions of these aggregations.

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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.

This factsheet has undergone review by the ISRA Independent Review Panel prior to its publication.

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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												
Carcharias taurus	Sand Tiger Shark (Grey Nurse Shark)	CR/CR*	0–232	X				X				
RAYS												
Aetobatus ocellatus	Spotted Eagle Ray	EN	0–40	X						X		
Rhinoptera neglecta	Australian Cownose Ray	DD	0–50							X		

SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
SHARKS		
Carcharhinus brevipinna	Spinner Shark	VU
Carcharhinus leucas	Bull Shark	VU
Carcharhinus obscurus	Dusky Shark	EN
Carcharhinus plumbeus	Sandbar Shark	EN
Chiloscyllium punctatum	Grey Carpetshark	NT
Negaprion acutidens	Sharptooth Lemon Shark	EN
Orectolobus maculatus	Spotted Wobbegong	LC
Rhincodon typus	Whale Shark	EN
Stegostoma tigrinum	Indo-Pacific Leopard Shark	EN
Triaenodon obesus	Whitetip Reef Shark	VU
RAYS		
Pastinachus ater	Broad Cowtail Ray	VU
Pateobatis fai	Pink Whipray	VU
Rhina ancylostomus	Bowmouth Guitarfish	CR
Taeniurops meyeni	Blotched Fantail Ray	VU

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.

**Status for east coast population.*

SUPPORTING INFORMATION

There are additional indications that the area may be important for three shark and one ray species.

Between 2018–2025, daily or weekly recreational dives were conducted in the area (D Fitzgerald & T Gray pers. obs. 2025). No formal records were collected from these recreational dives, however, anecdotal observations were made during the years these regular dives took place.

Since 2024, Spinner Sharks (<10 individuals) have been observed active at the surface between September to December. These observations were in association with Dusky Sharks (>10, rarely up to 100 individuals) which sit lower in the water column below the Spinner Sharks. These observations are made in blue waters off the islet of Flat Rock Minjerribah in waters rarely visited by recreational divers.

Bull Sharks were observed on ~20% of dives year-round. On average, around three Bull Sharks are observed on a single 60-minute dive (range 1–6 individuals in groups, depending on weather conditions and visibility). Aggregations of Bull Sharks are generally observed off the northern section of the area, in deeper (<30 m), current affected waters that are not dived as regularly, however, individuals are seen throughout the area (T Gray pers. obs. 2025).

Blotched Fantail Rays were observed in the area on ~40% of dives year-round, and ~90% of dives off the northern side of the islet. On average, four Blotched Fantail Rays are observed on a single 60-minute dive (range 1–8 individuals, depending on weather conditions and visibility). Most observations are of rays aggregating and hovering in the current (T Gray pers. obs. 2025), potentially a resting behaviour for this otherwise benthic ray.

Additional information is required to confirm the importance of the area for these species.

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