

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

## NIGHTCLIFF-CASUARINA BEACH ISRA

### Australia and Southeast Indian Ocean Region

#### SUMMARY

Nightcliff-Casuarina Beach is located in northern Darwin Harbour, Northern Territory, Australia. The area is characterised by shallow rocky reefs, a rocky headland, a tidal creek (Rapid Creek), sandy beaches, and soft substrates. It is influenced by large tidal amplifications. Within this area there are: **threatened species** and **feeding areas** (Reef Manta Ray *Mobula alfredi*).

#### CRITERIA

**Criterion A - Vulnerability; Sub-criterion C2 - Feeding Areas**

— AUSTRALIA —  
 — 0-11 metres —  
 — 18.49 km<sup>2</sup> —





## DESCRIPTION OF HABITAT

Nightcliff-Casuarina Beach is located in northern Darwin Harbour, Northern Territory, Australia. The area extends from Nightcliff Headland in the south to Lee Point in the north. It is characterised by varied habitat types including shallow hard coral communities, rocky reefs, seagrass, macroalgae, sponges, octocorals, filter feeder communities, and sand or other soft substrates (Lucieer et al. 2025). The area includes the lower estuarine portion of a small tidal creek with fringing mangroves (Rapid Creek) and a sandy beach (Casuarina Beach). Nightcliff-Casuarina Beach is subject to a monsoonal wet-dry season climate, with ~90% of rainfall occurring in the wet season (roughly November–April; Nicholls et al. 1982). The wet season is also characterised by tropical storm activity and periodic cyclones.

Darwin Harbour is a large embayment opening to Beagle Gulf in the Timor Sea, Eastern Indian Ocean. Large freshwater input from the Elizabeth River and Blackmore River occur during the wet season. The harbour is subject to large semidiurnal tidal amplifications, with a tidal range of 0.1–7.8 m and tidal currents ranging from 0.25–1.4 ms<sup>-1</sup> (Semeniuk 1985). Water temperatures may reach 36°C at high tide, with tide pools exceeding 43°C at low tide (Ferns 2016). As such, reef flats in Darwin Harbour are subject to a wide variety of daily and seasonal fluctuations in temperature, light availability, and sedimentation (Ferns 2016).

The area overlaps with Casuarina Coastal Reserve (PWCNT 2016).

This important Shark and Ray Area is benthic and pelagic and is delineated from inshore and surface waters (0 m) to 11 m based on the bathymetry of the area.

## 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 Reef Manta Ray (Marshall et al. 2022).

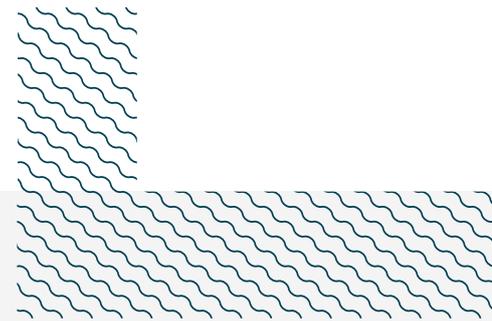
### SUB-CRITERION C2 – FEEDING AREAS

Nightcliff-Casuarina Beach is an important area for feeding of one ray species.

Between 2021–2025, Reef Manta Rays were recorded feeding in this area every year during the months of January, March, April, May, and October. Citizen science records (n = 13) mined from Facebook (Facebook 2025) and an additional unpublished observation (n = 1; PM Kyne unpubl. data 2024) of Reef Manta Rays highlight that this species comes nearshore to feed. Within Nightcliff-Casuarina Beach, the species has been observed adjacent to Nightcliff Headland, at the mouth of Rapid Creek, and along Casuarina Beach in shallow waters. An additional two records of ‘manta rays’ were not directly identifiable, however, it was inferred that these too were records of Reef Manta Ray owing to the shallow depth, consistent seasonal occurrence, and the lack of any Oceanic Manta Ray *Mobula birostris* records in Darwin Harbour or adjacent areas (in a meta-analysis of Australian manta ray records, there were only two Oceanic Manta Rays from the Northern Territory, one in the western Gulf of Carpentaria and one offshore in the Timor Sea; Armstrong et al. 2020). Feeding behaviour was inferred for 13 of 16 records (81%), with seven records (44%) being of somersault feeding behaviour and five records (31%) being straight feeding and/or surface feeding (as per



feeding behaviours outlined in Stevens 2016). This is the only location in the Northern Territory where feeding behaviour has been regularly observed and documented.



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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.

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### **Suggested citation**

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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	
RAYS													
<i>Mobula alfredi</i>	Reef Manta Ray	VU	0-711	X			X						

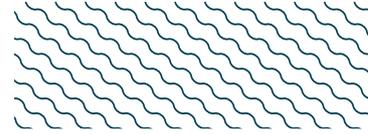
## SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
<b>SHARKS</b>		
<i>Atelomycterus macleayi</i>	Australian Marbled Catshark	LC
<i>Hemiscyllium trispeculare</i>	Speckled Carpetshark	LC
<i>Orectolobus reticulatus</i>	Network Wobbegong	LC
<b>RAYS</b>		
<i>Rhynchobatus australiae</i>	Bottlenose Wedgefish	CR
<i>Taeniura lymma</i>	Bluespotted Lagoon Ray	LC
<i>Urogymnus granulatus</i>	Mangrove Whipray	EN

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



## SUPPORTING INFORMATION



There are additional indications that Nightcliff-Casuarina Beach may be important for one range-restricted shark.

Australian Marbled Catshark records were collated from the citizen science database iNaturalist (n = 5; iNaturalist 2025) and an additional unpublished observation (n = 1; M Messer unpubl. data 2025). Records within the area were compared to all records available for the Northern Territory from iNaturalist (iNaturalist 2025) and the Atlas of Living Australia (ALA 2025). The six records from within the area represent 24% of all records across the Northern Territory (n = 25; ALA 2025; iNaturalist 2025). These records come from multiple years, confirming the regular occurrence of the species in the area: 2021 (n = 1); 2022 (n = 1), 2023 (n = 1), and 2024 (n = 3), and have been recorded in April, May, June, and July. Records from around the Northern Territory are scattered with Nightcliff-Casuarina Beach representing the only location with >2 records (ALA 2025; iNaturalist 2025). This species is poorly known (Kyne et al. 2021), with iNaturalist being the primary source of contemporary records in the Northern Territory as there have been no dedicated research projects, and there is no available fishery data on incidental catches since they are not monitored. Additional information is needed to confirm the importance of the area for this species.



## REFERENCES

- Armstrong AJ, Armstrong AO, Bennett MB, McGregor F, Abrantes KG, Barnett A, Richardson AJ, Townsend KA, Dudgeon CL. 2020.** The geographic distribution of reef and oceanic manta rays (*Mobula alfredi* and *Mobula birostris*) in Australian coastal waters. *Journal of Fish Biology* 96: 835–840. <https://doi.org/10.1111/jfb.14256>
- Atlas of Living Australia (ALA). 2025.** Atlas of Living Australia. Available at: <https://www.ala.org.au/> Accessed September 2025.
- Facebook. 2025.** Facebook. Available at: <https://www.facebook.com/> Accessed September 2025.
- Ferns LW. 2016.** Coral communities in extreme environmental conditions in the Northern Territory, Australia. *Northern Territory Naturalist* 27: 84–96.
- iNaturalist. 2025.** iNaturalist. Available at: <https://www.inaturalist.org/> Accessed September 2025.
- Kyne PM, Heupel MR, White WT, Simpfendorfer CA. 2021.** *The action plan for Australian sharks and rays 2021*. Hobart: National Environmental Science Program, Marine Biodiversity Hub.
- Lucieer V, Walsh P, Monk J, Flukes E. 2025.** Seemap Australia National Benthic Habitat Layer (NBHL) 2025. Hobart: Institute for Marine and Antarctic Studies (IMAS), University of Tasmania (UTAS).
- Marshall A, Barreto R, Carlson J, Fernando D, Fordham S, Francis MP, Herman K, Jabado RW, Liu KM, Pacoureau N, et al. 2022.** *Mobula alfredi* (amended version of 2019 assessment). *The IUCN Red List of Threatened Species* 2022: e.T195459A214395983. <https://dx.doi.org/10.2305/IUCN.UK.2022-1.RLTS.T195459A214395983.en>
- Nicholls N, McBride JL, Ormerod RJ. 1982.** On predicting the onset of the Australian wet season at Darwin. *Monthly Weather Review* 110: 14–17.
- Parks and Wildlife Commission of the Northern Territory (PWCNT). 2016.** Casuarina Coastal Reserve management plan. Darwin: Parks and Wildlife Commission of the Northern Territory.
- Semeniuk V. 1985.** Mangrove environments of Port Darwin, Northern Territory: the physical framework and habitats. *Journal of the Royal Society of Western Australia* 67: 81–97.
- Stevens GMW. 2016.** Conservation and population ecology of manta rays in the Maldives. Unpublished PhD Thesis, University of York, York.