



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

BLACK ROCK & THE TWINS ISRA

Asia Region

SUMMARY

Black Rock & the Twins is located on the west coast of the Malay Peninsula in southern Myanmar. The area consists of three small rocky island formations, characterised by coral reefs. Within this area there are: **threatened species** (e.g., Oceanic Manta Ray *Mobula birostris*); **range-restricted species** (Ranong Guitarfish *Rhinobatos ranongensis*); and **undefined aggregations** (e.g., Oceanic Manta Ray).

CRITERIA

Criterion A - Vulnerability; Criterion B - Range Restricted; Sub-criterion C5 - Undefined Aggregations

MYANMAR

0-60 metres

5.96 km²





DESCRIPTION OF HABITAT

Black Rock & the Twins is located along the west coast of the Malay Peninsula in the Tanintharyi state of southern Myanmar. The area encompasses three small rocky island formations: Black Rock (a small limestone islet), and North Twin and South Twin (both small tree-covered granite boulder islands). The area is characterised by coral reefs and is connected by pelagic waters.

Black Rock & the Twins is influenced by the boreal summer monsoon (May–October), which sees higher precipitation levels throughout the region (Xing et al. 2016). This region is subject to large amplitude internal waves common in the Andaman Sea. Alongside the seasonal monsoon, these internal waves contribute to nutrient and temperature mixing (Wall et al. 2012).

This Important Shark and Ray Area is benthopelagic and is delineated from inshore and surface waters (0 m) to 60 m based on the habitat features 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 Endangered Oceanic Manta Ray (Marshall et al. 2022) and the Vulnerable Ranong Guitarfish (Dulvy et al. 2021).

CRITERION B – RANGE RESTRICTED

This area holds the regular presence of Ranong Guitarfish as a resident range-restricted species. This species' occurrence is seasonal and appears to be amplified during the positive phase of the Indian Ocean Dipole (IOD), with observations by divers in December 2019, January 2020, March 2020, February 2023, and December 2023 of Ranong Guitarfish resting in groups on the seafloor in close proximity to one another (5–10 individuals, max = 20; T Ko Gyi pers. obs. 2019; S Arunrugstichai pers. obs. 2023; Smiling Seahorse pers. comm. 2023). Sightings were at Black Rock and Twin Rocks, between 25–30 m depth and the species has not been recorded in any adjacent areas where diving activities are regular. This species only occurs in the Bay of Bengal Large Marine Ecosystem.

SUB-CRITERION C5 – UNDEFINED AGGREGATIONS

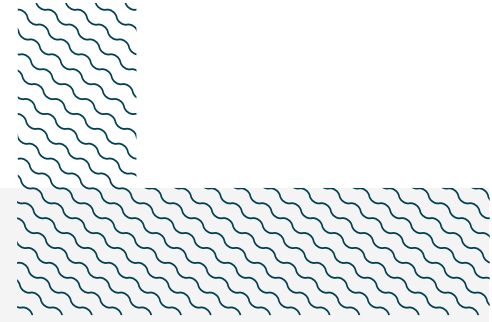
Black Rock & the Twins is an important area for undefined aggregations of two species of rays.

Since 2011, 276 encounters of Oceanic Manta Rays have been recorded during scientific dive surveys (Marine Megafauna Foundation [MMF] unpubl. data 2020) and from opportunistic citizen science submissions (MantaMatcher.org unpubl. data 2023). Research expeditions were conducted annually between 2012–2020 and contributed most recorded sightings from the area. From the 276 encounters, 216 individual rays were identified using photo-identification, with the remaining 60 encounters comprised of resightings of these individuals. The rocky islets of Black Rock, North Twin, and South Twin account for the majority of sightings in this area, with Black Rock home to over 95% of Oceanic Manta Ray sightings. This is potentially reflective of survey effort, whereby the majority of research expeditions only visited Black Rock, and North Twin and South Twin were only visited as a backup if encounters at Black Rock were unsuccessful. Black Rock is comprised of cleaning stations where small cleaner fish remove dead tissue and parasites from other fish. Oceanic Manta Rays were

observed cleaning on 31% of encounters at Black Rock (MMF unpubl. data 2020). These sites potentially function as an important socialisation hub, with up to 28 individuals identified on a single day. Pre-copulatory behaviour, such as courtship trains or chasing has been observed on some days with more than 15 individuals (MMF unpubl. data 2020). Of the 38% of manta encounters with a recorded age class, 92% were mature based on clasper development, mating scars, or pregnancy (based on Marshall & Bennett 2010; MMF unpubl. data 2020; MantaMatcher.org unpubl. data 2023). Pregnant Oceanic Manta Rays have been observed three times on Black Rock (MMF unpubl. data 2020). Oceanic Manta Rays have shown regular and predictable movements between southern Myanmar and Thailand. Photo-identification data from 2003-2020 has shown that 23 individuals have moved between aggregation sites of Black Rock, North Twin, and South Twin in Myanmar, and the Similan Islands, Koh Lanta, Hin Muang, and Hin Daeng in Thailand (MantaMatcher.org 2023; MMF unpubl. data 2020), however the migration route they follow is not well understood.

Ranong Guitarfish have been observed by SCUBA divers at Black Rock when the diving season overlaps with the IOD. They were first observed at ~26 m depth during a diving trip to Black Rock in December 2019 (Ko Gyi pers. obs. 2019). During dive trips in January 2020, ~20 individuals were observed resting on the seafloor in close proximity to each other. In February 2023, a pregnant Ranong Guitarfish was observed caught in a gillnet as bycatch on a drift gillnet fishing boat that was fishing at the depth of 60 m near Black Rock (S Arunrugstichai pers. obs. 2023). The pregnant Ranong Guitarfish was not released and the pups were seen aborted due to stress. The gillnet fishers communicated that it was common for them to catch Ranong Guitarfish in this area. Ranong Guitarfish were recorded again in December 2023 during the positive phase of the IOD (Smiling Seahorse pers. comm. 2023). Observations from SCUBA divers in December 2023 were of >10 individuals in proximity to each other on the seafloor at the deeper end of the slope of Black Rock. Ranong Guitarfish have been observed by SCUBA divers at North Twin when the diving season overlaps with the IOD. They were observed during diving trips at North Twin in December 2019, January 2020 (S Arunrugstichai pers. obs. 2023), and again in December 2023 (Smiling Seahorse pers. comm. 2023). During the dive season in 2019/2020, SCUBA divers observed 5-10 individuals laying on the seafloor during the dives at 25-30 m depth at North Twin.

Further information is required to determine the nature and function of these aggregations.



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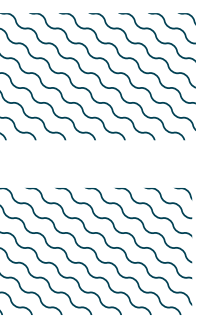
QUALIFYING SPECIES

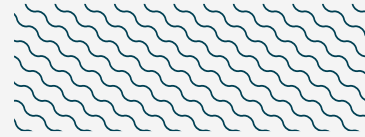
Scientific Name	Common Name	IUCN Red List Category	Global Depth Range (m)	ISRA Criteria/Sub-criteria Met									
				A	B	C1	C2	C3	C4	C5	D1	D2	
RAYS													
<i>Mobula birostris</i>	Oceanic Manta Ray	EN	0-1,246	X							X		
<i>Rhinobatos ranongensis</i>	Ranong Guitarfish	VU	25-108	X	X						X		

SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
SHARKS		
<i>Carcharhinus amblyrhynchoides</i>	Graceful Shark	VU
<i>Carcharhinus brevipinna</i>	Spinner Shark	NT
<i>Carcharhinus sorrah</i>	Spottail Shark	NT
<i>Chiloscyllium hasselti</i>	Indonesian Bambooshark	EN
<i>Chiloscyllium punctatum</i>	Grey Carpetshark	NT
<i>Galeocerdo cuvier</i>	Tiger Shark	NT
<i>Rhincodon typus</i>	Whale Shark	EN
<i>Scoliodon laticaudus</i>	Spadenose Shark	NT
<i>Stegostoma tigrinum</i>	Indo-Pacific Leopard Shark	EN
<i>Triaenodon obesus</i>	Whitetip Reef Shark	VU
RAYS		
<i>Aetobatus ocellatus</i>	Spotted Eagle Ray	EN
<i>Himantura leoparda</i>	Leopard Whipray	VU
<i>Himantura uarnak</i>	Coach Whipray	EN
<i>Mobula thurstoni</i>	Bentfin Devil Ray	EN
<i>Pateobatis jenkinsii</i>	Jenkins' Whipray	VU
<i>Rhina ancylostomus</i>	Bowmouth Guitarfish	CR
<i>Taeniura lymma</i>	Bluespotted Lagoon Ray	VU
<i>Taeniurops meyeri</i>	Blotched Fantail Ray	VU
<i>Urogymnus granulatus</i>	Mangrove Whipray	EN

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.





REFERENCES

- Dulvy NK, Bineesh KK, Derrick D, Fernando D, Haque AB, Maung A, Sherman CS. 2021.** *Rhinobatos ranongensis*. *The IUCN Red List of Threatened Species* 2021: e.T176486239A176486247. <https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T176486239A176486247.en>
- Marshall AD & Bennett MB. 2010.** Reproductive ecology of the reef manta ray *Manta alfredi* in southern Mozambique. *Journal of Fish Biology* 77: 169–190. <https://doi.org/10.1111/j.1095-8649.2010.02669.x>
- Marshall A, Barreto R, Carlson J, Fernando D, Fordham S, Francis MP, Derrick D, Herman K, Jabado RW, Liu KM, et al. 2022.** *Mobula birostris* (amended version of 2020 assessment). *The IUCN Red List of Threatened Species* 2022: e.T198921A214397182. <https://dx.doi.org/10.2305/IUCN.UK.2022-1.RLTS.T198921A214397182.en>
- Wall M, Schmidt GM, Janjang P, Khokiattiwong S, Richter C. 2012.** Differential impact of monsoon and large amplitude internal waves on coral reef development in the Andaman Sea. *PLoS One* 7(11): e50207. <https://doi.org/10.1371/journal.pone.0050207>
- Xing N, Li J, Wang L. 2016.** Effect of the early and late onset of summer monsoon over the Bay of Bengal on Asian precipitation in May. *Climate Dynamics* 47: 1961–1970. <https://doi.org/10.1007/s00382-015-2944-z>