

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

SIPADAN ISRA

Asia Region

SUMMARY

Sipadan is located ~35 km off the coast of Semporna in southeast Sabah, Malaysia. This pinnacle reef rises steeply from the surrounding shelf slope to the surface. The area is characterised by pelagic waters, steep reef walls with rubble ledges, and shallow reef tops. It overlaps with the Sulu-Sulawesi Marine Ecoregion Ecologically or Biologically Significant Marine Area and the Sipadan Marine Park. Within this area there are: **threatened species** (e.g., Scalloped Hammerhead *Sphyrna lewini*); **reproductive areas** (e.g., Grey Reef Shark *Carcharhinus amblyrhynchos*); **resting areas** (Whitetip Reef Shark *Triaenodon obesus*); and **undefined aggregations** (Scalloped Hammerhead).

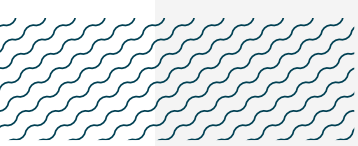
CRITERIA

Criterion A - Vulnerability; Sub-criterion C1 - Reproductive Areas; Sub-criterion C3 - Resting Areas; Sub-criterion C5 - Undefined Aggregations

MALAYSIA

0-750 metres

11.98 km²





DESCRIPTION OF HABITAT

Sipadan is located ~35 km off the coast of Semporna in southeast Sabah, Malaysia. This area is a single reef that surrounds Sipadan Island and represents the remnants of a volcanic thrust emerging from the surrounding shelf slope at ~600 m depth (Musa 2002). The habitat is characterised by shallow reef tops, steep reef walls with rubble ledges, and pelagic waters. The reef is influenced by strong currents, particularly at the corner sites of the reef (C & D McCann pers. obs. 2023). These include Barracuda Point and South Point – two popular dive sites in the north and south, respectively. Hanging Garden is another popular dive site in the west of the reef that drops steeply to mesopelagic depths. As the tip of a seamount rising from the deep shelf slope, Sipadan differs from other reefs in the region that are located on the continental shelf in shallower water and are close to each other and to the mainland.

Sipadan overlaps with the Sulu-Sulawesi Marine Ecoregion Ecologically or Biologically Significant Marine Area (EBSA; CBD 2024) and with the Sipadan Marine Park.

This Important Shark and Ray Area is benthopelagic and is delineated from inshore and surface waters (0 m) to 750 m based on the bathymetry of 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 Scalloped Hammerhead (Rigby et al. 2019), the Endangered Grey Reef Shark (Simpfendorfer et al. 2020a), and the Vulnerable Whitetip Reef Shark (Simpfendorfer et al. 2020b).

SUB-CRITERION C₁ – REPRODUCTIVE AREAS

Sipadan is an important reproductive area for two shark species.

Dive leaders working in Sipadan between 2010-2019 have kept a detailed logbook of species sightings (n = 13,308 dives logged; Scuba Junkie unpubl. data 2023).

Courtship and mating events of Whitetip Reef Sharks are regularly observed seasonally between November-April, with mating behaviour occurring multiple times over several weeks within that season (C & D McCann pers. obs. 2023). Courtship observations are of multiple males following a single female, and mating events are characterised by a male biting onto the female's gills and/or pectoral fin. Additionally, females are frequently observed with bite marks around their gills, indicative of recent mating activity, and pregnant females are also observed (C & D McCann pers. obs. 2023). Most courtship and mating observations are made at Barracuda Point and South Point, which are the only sites in Sipadan with shallow rubble ledges on an otherwise steep reef wall. There is a high density of Whitetip Reef Sharks in Sipadan that are regularly encountered (Vianna et al. 2017) and the species is reported in 98% of dives (Scuba Junkie unpubl. data 2023). By contrast, Whitetip Reef Sharks are rarely seen at other reefs in the region and Sipadan thus stands out as providing frequent opportunity for courtship and reproduction.

Groups of neonate or young-of-the-year (YOY) Grey Reef Sharks are regularly reported, particularly at the South Point dive site (C & D McCann pers. obs. 2023). At this site, aggregations (defined as 10 or more individuals together) of neonate/YOY individuals were recorded 897 times and in every

year, with a mean aggregation size of 17.7 individuals (range = 10–69) (Scuba Junkie unpubl. data 2023). Their size was visually estimated to be 70–90 cm total length (TL); the known size-at-birth for the species is 45–65 cm TL (Ebert et al. 2021). These aggregations were recorded throughout the year with a peak in June–September, suggesting seasonal reproduction in this species at Sipadan. Neonate/YOY aggregations were always separate from larger individuals that were sometimes seen on the same dive or at different dive sites, indicating spatial segregation by size on the same reef, possibly to avoid intra-specific competition. More than half (58%) of all aggregations recorded for this species were comprised of neonates/YOY. Grey Reef Sharks are not seen by divers at any other reef in the region (C & D McCann pers. obs. 2023), highlighting the importance of Sipadan for this species and especially for their early life-stages.

SUB-CRITERION C3 – RESTING AREAS

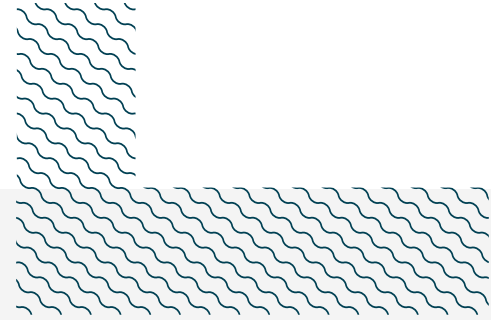
Sipadan is an important resting area for one shark species.

Aggregations of Whitetip Reef Sharks are regularly recorded, with 6,415 aggregations of 10–50 individuals seen over 13,308 dives logged between 2010–2019 (Scuba Junkie unpubl. data 2023). The species was also seen in smaller groups (<10 individuals) on almost all dives (98%). Aggregations usually displayed one of two behaviours: resting on shallow rubble areas or swimming in the current. Resting in aggregations is therefore a major behaviour for Whitetip Reef Sharks in Sipadan. Both behaviours are often reported on the same dive, with some groups resting on rubble ledges and the others swimming nearby. Resting aggregations occur each month with little seasonality and are usually larger in stronger currents, again highlighting the importance of this area for resting after swimming in strong currents. Whitetip Reef Shark aggregations are mostly observed at Barracuda Point (42% of all aggregations recorded in Sipadan) and South Point (30%) which are exposed corners of the reef with strong currents (C & D McCann pers. obs. 2023). The only rubble areas of Sipadan are at Barracuda Point and South Point, while elsewhere the reef wall drops steeply with no available resting habitat (C & D McCann pers. obs. 2023). The species is rarely seen at other reefs in the region, further underlining the importance of Sipadan for Whitetip Reef Sharks.

SUB-CRITERION C5 – UNDEFINED AGGREGATIONS

Sipadan is an important area of undefined aggregations for one shark species.

A logbook of sightings from each dive between 2010–2019 (n = 13,308 dives) was used to examine numbers of aggregations (Scuba Junkie unpubl. data 2023). Aggregations were defined as 10 or more individuals seen on a dive. Scalloped Hammerhead aggregations were recorded 43 times with up to 150 individuals in a school. Aggregations were recorded each year and had an average of 40 individuals per school. There was a seasonal signal in sightings, with most Scalloped Hammerhead aggregations (70%) observed from July to November. Most aggregations were seen in the south and west at South Point (40%) and Hanging Garden (35%). At Hanging Garden, divers specifically dived off the reef to look for Scalloped Hammerheads, and there, schools were generally larger than at South Point. More information is needed to determine the nature and function of these aggregations.



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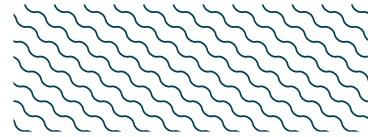
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QUALIFYING SPECIES

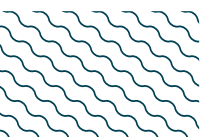
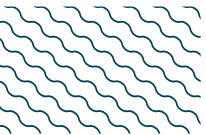
Scientific Name	Common Name	IUCN Red List Category	Global Depth Range (m)	ISRA Criteria/Sub-criteria Met									
				A	B	C1	C2	C3	C4	C5	D1	D2	
SHARKS													
<i>Carcharhinus amblyrhynchos</i>	Grey Reef Shark	EN	0-50	X		X							
<i>Sphyrna lewini</i>	Scalloped Hammerhead	CR	0-1,043	X						X			
<i>Triaenodon obesus</i>	Whitetip Reef Shark	VU	0-330	X		X		X					

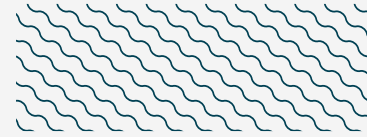
SUPPORTING SPECIES



Scientific Name	Common Name	IUCN Red List Category
SHARKS		
<i>Carcharhinus melanopterus</i>	Blacktip Reef Shark	VU
<i>Stegostoma tigrinum</i>	Indo-Pacific Leopard Shark	EN
RAYS		
<i>Aetobatus ocellatus</i>	Spotted Eagle Ray	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.





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