

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

LANKAN BEYRU ISRA

Western Indian Ocean Region

SUMMARY

Lankan Beyru is situated on the outer side of Lankanfushi island in eastern North Malé Atoll in the northern-central Maldives. This area is composed of three main sites: Lankan Beyru, Nassimo Thila, and Sunlight Faru. The area is characterised by a sloping coral reef that runs between channels, a series of flat, layered coral tables, a lagoon, and a pinnacle reef, where the reef top is shallow but remains completely submerged. This area partially overlaps with a marine protected area. Within this area there are: **threatened species** (e.g., Whitetip Reef Shark *Triaenodon obesus*); **reproductive areas** (Reef Manta Ray *Mobula alfredi*); and **undefined aggregations** (Whitetip Reef Shark).

CRITERIA

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

MALDIVES

0-40 metres

6.5 km²





DESCRIPTION OF HABITAT

Lankan Beyru is located in the northern-central Maldives archipelago which sits centrally upon the Chagos-Laccadive Ridge (Stevens & Froman 2019). This area is composed by three main sites (Lankan Beyru, Nassimo Thila, and Sunlight Faru) located on the outer side of Lankanfushi island in eastern North Malé Atoll.

Lankan Beyru site is a sloping coral reef that runs between channels on either side of Lankanfushi Island (Godfrey 2018). It is ~400 m long and the top reef sits at ~5 m depth and slopes gradually down to ~30 m at the deepest point. At ~12 metres depth there is a series of flat, layered coral tables (Godfrey 2018). Nassimo Thila (also known as Lankan Thila or Manta Point) sits inside North Malé Atoll and reaches a depth of ~20 m at the deepest point. Thilas are the local names for underwater pinnacle reefs, where the top reef is shallow but remains completely submerged even during high tides (Stevens & Froman 2019). Sunlight Faru is a sandy lagoon area with scatterings of coral heads on the sea floor at a depth of ~18 m (Godfrey 2018).

The weather in the Maldives is strongly influenced by the South Asian monsoon, especially the northern and central atolls as these are closer to the Indian subcontinent (Anderson et al. 2011). Therefore, two monsoons occur annually in Maldives. The southwest monsoon (locally known as Hulhan'gu), from May to November, and the Northeast monsoon (locally known as Iruvai), from January to March, with transitional periods in December and April (Shankar et al. 2002; Anderson et al. 2011). The southwest monsoon increases average rainfall, and wind speeds, causing rougher seas and reduced visibility; in contrast, the northeast monsoon usually brings clear waters (Stevens & Froman 2019).

The Maldives archipelago disrupts the flow of the monsoon-driven North Equatorial Current as it crosses the Indian Ocean (Schott & McCreary 2001) which creates a current flow through the Maldives' channels (Sasamal 2006). The strongest lunar currents can overcome the prevailing monsoonal currents through the tidal suction mechanism along the channel's outer edges (Stevens 2016).

This Important Shark and Ray Area is benthopelagic 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 Vulnerable Whitetip Reef Shark (Simpfendorfer et al. 2020) and Reef Manta Ray (Marshall et al. 2022).

SUB-CRITERION C1 - REPRODUCTIVE AREAS

Lankan Beyru is an important reproductive area for one ray species.

Data collected between 2007-2022 revealed that 5.2% (n = 334) of all Reef Manta Ray sightings (n = 6,361) were of courtship behaviour. The behaviour was observed in 179 Reef Manta Rays and included shadowing and mating chains (IDtheManta unpubl. data 2007-2022). Reef Manta Ray courtship and

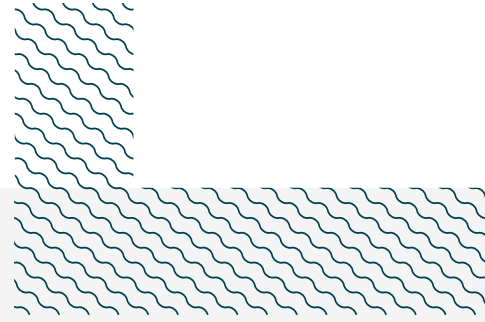
mating behaviour has been studied over a 14-year period (2003–2016) showing photographic evidence of this behavior (Stevens et al. 2018). Lankan Beyru had the highest number of courtship events ($n = 62$) in the Maldives, based on 11,000 surveys undertaken at known Reef Manta Ray aggregation sites across the archipelago (22 atolls across 265 different sites). Also, 469 pregnant females have been observed, 290 of which were in near-term pregnancy (i.e., fourth trimester) (IDtheManta unpubl. data 2007–2022). Females are determined to be pregnant by the presence of extended abdomens by trained researchers as described by Stevens (2016). These can establish the trimester using the size of the rounded belly through sight. Also using photo-identification, the pregnancy periods can be tracked for re-sighted Reef Manta Rays. Pregnancy in Reef Manta Rays has been verified in 2018–2019 using contactless ultrasound scanning in other sites of the Maldives (Froman et al. 2023).

SUB-CRITERION C5 – UNDEFINED AGGREGATIONS

Lankan Beyru is an important aggregation area for one shark species.

For Whitetip Reef Sharks, data were collected from a citizen-science program known as the Sharkwatch project which was a government-led initiative between 2009–2019 (Maldives Marine Research Institute [MMRI], unpubl. data 2023). Data were collected by experienced dive guides using the roving diver technique where surveyors can swim in any direction and count the number of individuals encountered by species during 1-hour dive survey. From the ~1,110 sites surveyed in the Maldives, this area has been identified as one of the most important aggregations for the Whitetip Reef Shark (MMRI unpubl. data 2023). Sharkwatch surveys were conducted over eight years (2009–2017; $n = 1,698$) in this area.

Sharkwatch surveys recorded aggregations ($n = 55$) of >10 Whitetip Reef Sharks/hour (MMRI unpubl. data 2023). Of these aggregations, >15 Whitetip Reef Sharks/hour were recorded in six years (2013, 2015–2019). In 2016, four surveys recorded >20 Whitetip Reef Sharks/hour in the southwest monsoon season, with 45 Whitetip Reef Sharks/hour observed in one event, and in the northeast monsoon season, one dive recorded >20 Whitetip Reef Sharks/hour (MMRI unpubl. data 2023).



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Clare Baranowski (Manta Trust), Khadeeja Ali (Maldives Marine Research Institute), and Adriana Gonzalez-Pestana (IUCN SSC Shark Specialist Group - ISRA Project) contributed and consolidated information included in this factsheet. We thank all participants of the 2023 ISRA Region 7 - Western Indian Ocean workshop for their contributions to this process.

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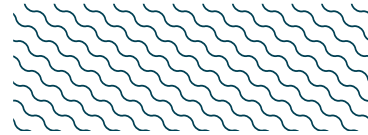
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QUALIFYING SPECIES

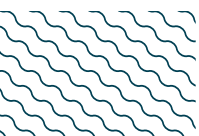
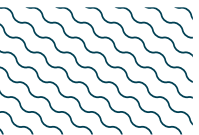
Scientific Name	Common Name	IUCN Red List Category	Global Depth Range (m)	ISRA Criteria/Sub-criteria Met									
				A	B	C1	C2	C3	C4	C5	D1	D2	
SHARKS													
<i>Triaenodon obesus</i>	Whitetip Reef Shark	VU	0-330	X							X		
RAYs													
<i>Mobula alfredi</i>	Reef Manta Ray	VU	0-711	X		X							

SUPPORTING SPECIES

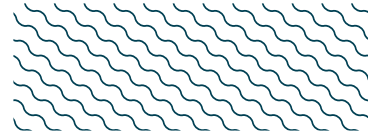


Scientific Name	Common Name	IUCN Red List Category
SHARKS		
<i>Carcharhinus amblyrhynchos</i>	Grey Reef Shark	EN
<i>Carcharhinus melanopterus</i>	Blacktip Reef Shark	VU
RAYS		
<i>Aetobatus ocellatus</i>	Spotted Eagle Ray	EN
<i>Mobula kuhlii</i>	Shorthorned Pygmy Devil Ray	EN

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.



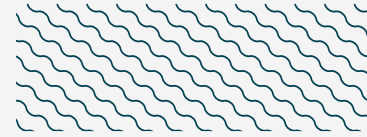
SUPPORTING INFORMATION



There are additional indications that Lankan Beyru is an important aggregation area for one shark and one ray species.

Sharkwatch surveys (n = 16) recorded >10 Blacktip Reef Sharks/hour (MMRI unpubl. data 2009-2019). In nine surveys, >15 Blacktip Reef Sharks/hour were observed, and on seven surveys, >20 Blacktip Reef Sharks/hour were recorded (MMRI unpubl. data 2023). Further information is needed to confirm the regular and predictable occurrence of these aggregations and their function.

Manta Point, located within this area, is one of the most reliable sites to observe Reef Manta Rays seasonally during the southwest monsoon season (Kitchen-Wheeler et al. 2011; Stevens 2016). Reef Manta Rays have been observed cleaning and resting in this area. Data collected between 2007-2022 revealed that 92% (n = 5,879) of all sightings (n = 6,361) resulted in cleaning events by 551 individuals (IDtheManta Database 2007-2022). Reef Manta Rays use cleaning stations to thermoregulate (Stevens 2016) and engage in social interactions (Stevens et al. 2018) both of which are important aspects of the resting behaviour they exhibit at this location alongside cleaning.



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