

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

GURAIIDHOO KANDU ISRA

Western Indian Ocean Region

SUMMARY

Guraidhoo Kandu is a channel that connects the inner atoll lagoon to the open ocean in the southeastern side of South Malé Atoll in central Maldives. This area encompasses the sites Guraidhoo Corner (edge of the atoll reef), Medhu Faru (a reef structure that emerges with low tide), and Lhosfushi Kandu (a smaller channel on the outer atoll side of this area). This area is located within a marine protected area. Within this area there are: **threatened species** (e.g., Grey Reef Shark *Carcharhinus amblyrhynchos*) and **undefined aggregations** (e.g., Whitetip Reef Shark *Triaenodon obesus*).

CRITERIA

Criterion A - Vulnerability; Sub-criterion C5- Undefined Aggregations

MALDIVES

0-40 metres

0.45 km²





DESCRIPTION OF HABITAT

Guraidhoo Kandu is located in central Maldives which sits centrally upon the Chagos-Laccadive Ridge (Stevens & Froman 2019). This area is in the southeastern side of South Malé Atoll, in a channel opening on the outer reef connecting the inner atoll lagoon to open ocean. Channels, known locally as Kandu, are recognised by their high current flow (Stevens & Froman 2019).

This area encompasses the sites of Guraidhoo Corner, Medhu Faru, and Lhosfushi Kandu. Guraidhoo Corner is on the edge of the atoll reef with the top at ~3 m and descends to 30-40 m depth (Godfrey 2023). Medhu Faru is a reef structure that emerges at low tide (locally known as Faru) on the outer atoll side of this area and drops to 30 m (Godfrey 2018). Lhosfushi Kandu, a smaller channel on the outer atoll side of this area, reaches 30 m depth with a sandy substrate.

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 area overlaps with K. Guraidhoo Kanduolhi (also known as Guraidhoo Kandu), a marine protected area declared in 1995 (Godfrey 2023).

This Important Shark and Ray Area is benthopelagic and is delineated from the surface (0 m) to 40 m based on the depth range of Qualifying Species in this area, and 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 Endangered Grey Reef Shark (Simpfendorfer et al. 2020a) and the Vulnerable Whitetip Reef Shark (Simpfendorfer et al. 2020b).

SUB-CRITERION C5 - UNDEFINED AGGREGATIONS

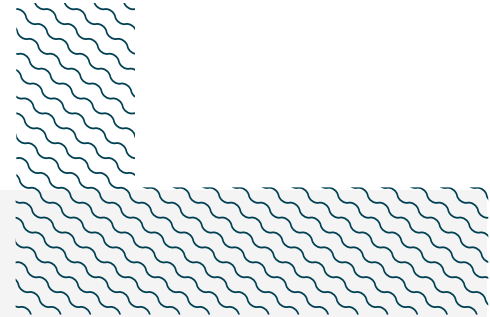
Guraidhoo Kandu is an important area for aggregations of two shark species.

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 one-hour dive surveys. From the ~1,110 sites surveyed in the Maldives, this area has been

identified as one of the most important aggregations for Whitetip Reef Shark and Grey Reef Shark (MMRI unpubl. data 2023). Sharkwatch surveys were conducted in the following sites and periods: Guraidhoo Corner (n = 202; 2009–2019), Lhosfushi Kandu (n = 408; 2009–2016), and Medhu Faru (n = 103; 2010–2019). Aggregations for both species have been recorded regularly and predictably in this area.

For Whitetip Reef Shark, Sharkwatch surveys reported an estimated mean encounter rate of 7, 10, and 6 sharks/hour in Guraidhoo Corner, Lhosfushi Kandu, and Medhu Faru, respectively (MMRI unpubl. data 2023). In Guraidhoo Corner, >10 sharks/hour were recorded in five years (2011, 2012, 2013, 2015, and 2016; n = 50 surveys); while >20 sharks/hour were recorded in four years (2011, 2013, 2015, 2016; n = 7 surveys) (MMRI unpubl. data 2023). In Lhosfushi Kandu, >10 sharks/hour were observed in six years (2011–2016; n = 46 surveys); while >20 sharks/hour were recorded in three years (2011, 2013, and 2014; n = 5 surveys) (MMRI unpubl. data 2023). In Medhu Faru, >10 sharks/hour were observed in two years (2018–2019; n = 9 surveys) (MMRI unpubl. data 2023). Whitetip Reef Sharks are observed in both monsoon seasons. For example, in Lhosfushi Kandu for both monsoon seasons, >10 sharks/hour were recorded in 2012, 2013, and 2014 in each season (MMRI unpubl. data 2023); while in Medhu Faru >20 sharks/hour were recorded in 2018 in one survey in each monsoon season (MMRI unpubl. data 2023). Courtship behaviour (where males [n = 7] have been seen following a female) has also been recorded in this area (G Stevens pers. comms. 2023). However, further information is needed to understand the nature and function of these aggregations.

For Grey Reef Sharks, surveys indicated an estimated mean encounter rate of 5 and 9 sharks/hour in Guraidhoo Corner and Medhu Faru, respectively (MMRI unpubl. data 2023). In Guraidhoo Corner, >20 sharks/hour were recorded in two years (2013, 2016; n = 4 surveys) (MMRI unpubl. data 2023). In Medhu Faru, >20 sharks/hour in 2017 (n = 2 surveys) and >50 sharks/hour in 2019 (n = 2 surveys) were recorded (MMRI unpubl. data 2023). Grey Reef Sharks are observed in both monsoon seasons. For example, in Guraidhoo Corner in 2016, 69 sharks/hour were observed in the southwest monsoon season and 45 sharks/hour in the northeast monsoon season (MMRI unpubl. data 2023). Grey Reef Sharks are generally encountered in groups in the channel at various depths. This area might be used as a resting ground for this species. In channels with strong currents in French Polynesia, Grey Reef Sharks use current-induced updraft zones to reduce energy expenditure (Papastamatiou et al. 2021). Further information is needed to understand the nature and function of these aggregations.



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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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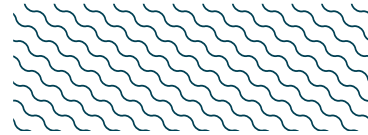
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QUALIFYING SPECIES

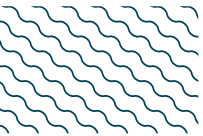
Scientific Name	Common Name	IUCN Red List Category	Global Depth Range (m)	ISRA Criteria/Sub-criteria Met									
				A	B	C1	C2	C3	C4	C5	D1	D2	
SHARKS													
<i>Carcharhinus amblyrhynchos</i>	Grey Reef Shark	EN	0-280	X							X		
<i>Triaenodon obesus</i>	Whitetip Reef Shark	VU	0-330	X							X		

SUPPORTING SPECIES



Scientific Name	Common Name	IUCN Red List Category
SHARKS		
<i>Carcharhinus melanopterus</i>	Blacktip Reef Shark	VU
<i>Nebrius ferrugineus</i>	Tawny Nurse Shark	VU
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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