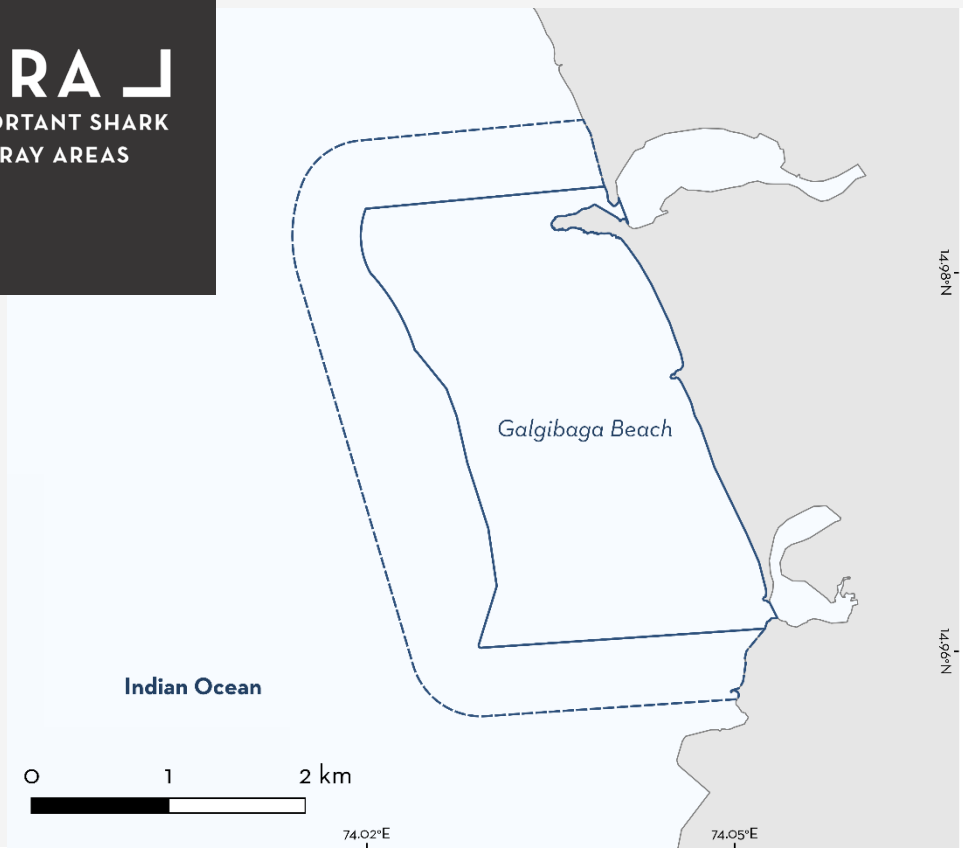
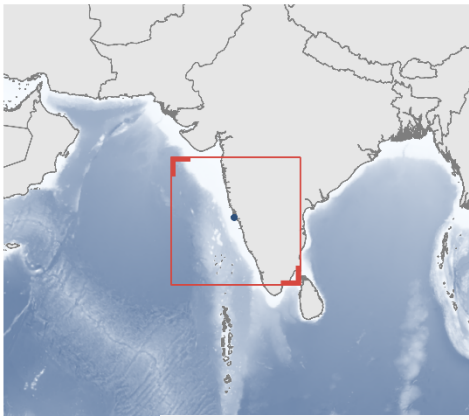
ISRA
IMPORTANT SHARK AND RAY AREAS





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

GALGIBAGA BEACH ISRA

Western Indian Ocean Region

INDIA

0–10 metres

6.04 km²

SUMMARY

Galgibaga Beach is located in southern Goa on the central west coast of India. The area is a ~3 km stretch of coast encompassing Galgibaga and Talpona beaches, with a wide and shallow continental shelf. It is bound by two rivers and the coastal habitat includes sand banks with scattered laterite and basalt rocks, and mangrove forests at the river mouths. Within this area there are: **threatened species** (e.g., Sharpnose Guitarfish *Glaucostegus granulatus*); **range-restricted species** (Sharpnose Guitarfish); **reproductive areas** (Blacktip Shark *Carcharhinus limbatus*); and **undefined aggregations** (e.g., Widenose Guitarfish *Glaucostegus obtusus*).

CRITERIA

Criterion A – Vulnerability; Criterion B – Range Restricted;
Sub-criterion C1 – Reproductive Areas; Sub-criterion C5 – Undefined Aggregations

DESCRIPTION OF HABITAT

Galgibaga Beach is located in southern Goa on the central west coast of India. The area consists of two beaches, Galgibaga and Talpona, with a coastline of ~3 km bound by the Talpona River in the north and the Galgibaga River in the south. The coastal habitat includes sand banks with scattered laterite and basalt rocks, and mangrove forests at the river mouths (Dakshin Foundation 2020). The continental shelf in this region is wide, with shallow waters extending to 100 km from shore. The region faces a semidiurnal tidal regime with a tidal range of 1–3 m.

Primary productivity in this region is related to near-stable sea surface temperatures (Singh & Roxy 2022) and the two oceanographic seasons: the southwest monsoon (June–October) and the northeast monsoon (November–February) (Schott & McCreary 2001). The former is characterised by the West Indian Coastal Current flowing southwards while the latter is marked by a reversal in the direction of these currents, in the form of the East Indian Coastal Current (EICC). Strong upwellings are observed during the southwest monsoon on the west coast leading to high primary productivity, which declines during the northeast monsoon due to a flux of freshwater from the Bay of Bengal through the EICC (Madhupratap et al. 2001).

This Important Shark and Ray Area is benthopelagic and is delineated from surface and inshore waters (0 m) to 10 m based on occurrence of the Qualifying Species.

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 Sharpnose Guitarfish (Kyne et al. 2022) and Widenose Guitarfish (Kyne & Jabado 2021), and the Vulnerable Blacktip Shark (Rigby et al. 2021).

CRITERION B – RANGE RESTRICTED

The area holds the regular presence of Sharpnose Guitarfish as a resident range-restricted species. The species reportedly occurs year-round as indicated through local ecological knowledge (LEK) surveys (Gupta et al. 2023) and fisheries landing surveys (of shore seine nets in particular; T Gupta et al. unpubl. data 2023). Sharpnose Guitarfish are restricted to the Arabian Sea Large Marine Ecosystem (LME).

SUB-CRITERION C1 – REPRODUCTIVE AREAS

Galgibaga Beach is important for the reproduction of one shark species.

Blacktip Shark neonates (with open umbilical scars) have been recorded in small-scale fisheries in this area and neighbouring regions through fish landing surveys in 2023 and local ecological knowledge (LEK) surveys of local fishers in 2021, 2022, and 2023. LEK indicate that Blacktip Sharks are found in this area only over the months of June, July, and August and suggests that the species comes nearshore as these months are the pupping season (T Gupta et al. unpubl. data 2023). Fisher

LEK confirms that this occurrence pattern is seen every year, going back at least 10 years. Fisheries surveys recorded at least 2,000 sharks landed in 2023, with size recorded for 62 animals. These measured 72.5 ± 4 cm total length (TL) (T Gupta et al. unpubl. data 2023), which overlaps with the size-at-birth of the species (38–72 cm TL; Jabado & Ebert 2015).

SUB-CRITERION C5 – UNDEFINED AGGREGATIONS

Galgibaga Beach is important for undefined aggregations of two ray species.

An assemblage of Widenose Guitarfish and Sharpnose Guitarfish has been recorded along this coastline at very shallow depths of <1 m. This is supported by LEK surveys (Gupta et al. 2023) and preliminary ecological surveys (T Gupta et al. unpubl. data 2023). The assemblage is generally dominated by Widenose Guitarfish with lower numbers of Sharpnose Guitarfish. Ecological surveys include walking transects along the shore to survey for guitarfishes in the shallow waters (methodology developed by Nazareth et al. pers. comm. 2023). Eighty-four individuals were sighted in these waters during a survey in August 2023, with assemblages of up to 20 individuals at one location. These species have also been sighted during other similar surveys at different months across different years (February 2019, June 2023, December 2020).

A small number of measured Widenose Guitarfish appeared to be neonates or young-of-the-year (n = 5, 29.3 ± 4.3 TL, healing umbilical scars; size-at-birth unknown). Similar surveys in neighbouring areas have recorded fewer numbers of guitarfish compared to Galgibaga Beach. LEK indicates that these assemblages occur throughout the year, especially in the months of September and October. LEK, anecdotal evidence, and preliminary ecological surveys also confirm that guitarfish assemblages occur in larger numbers and more predictably in the area compared to neighbouring regions. Little is known about the nature and function of these aggregations, but similar aggregations of species within the same genus have been noted in other parts of India and globally (Chaikin et al. 2020; Nazareth et al. 2022).

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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												
Carcharhinus limbatus	Blacktip Shark	VU	1–140	X		X						
RAYS												
Glaucostegus granulatus	Sharpnose Guitarfish	CR	0–120	X	X					X		
Glaucostegus obtusus	Widenose Guitarfish	CR	0–60	X						X		

SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
SHARKS		
Chiloscyllium arabicum	Arabian Carpetshark	NT
Chiloscyllium griseum	Grey Bamboo Shark	VU
Scoliodon laticaudus	Spadenose Shark	NT
Sphyrna lewini	Scalloped Hammerhead	CR
RAYS		
Brevitrygon walga	Scaly Whipray	NT
Maculabatis gerrardi	Whitespotted 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.

SUPPORTING INFORMATION

There are additional indications that Galgibaga Beach may be important for reproductive activities of other shark and ray species.

Arabian Carpetsharks recorded were neonates and young-of-the-year (YOY). A total of >500 sharks were recorded with 23 animals measured. Mean size was 19.4 ± 2.4 cm TL which is slightly larger than the known size-at-birth of 10 cm TL (Jabado & Ebert 2015). These were recorded in artisanal shore seine nets during June-August 2023, and LEK indicates their presence year-round (T Gupta et al. unpubl. data 2023).

Grey Bamboo Sharks that can be considered neonate to young-of-the-year according to their size (n = 7, 17.2 ± 3.5 cm TL; size-at-birth, 12 cm TL; Jabado & Ebert 2015) were recorded in artisanal shore seine nets during June-August 2023, and LEK suggests their presence year-round (T Gupta et al. unpubl. data 2023).

Spadenose Sharks that can be considered neonate to young-of-the-year according to their size (total n = 50, sampled n = 4, 21.6 ± 3.1 cm TL; size-at-birth, 12–15 cm TL; Jabado & Ebert 2015) were recorded in artisanal shore seine nets during June-August 2023, and LEK suggests their presence year-round (T Gupta et al. unpubl. data 2023). Pregnant Spadenose Sharks (n = 2) have also been recorded in July (maternal size unrecorded; embryos, 12–15 cm TL).

Scaly Whipray neonates (total n >300, sampled n = 26, 11.5 ± 1.4 cm disc width [DW]; size-at-birth, 7–10 cm DW; Last et al. 2016) were recorded in artisanal shore seine nets during June-August 2023, and LEK suggests their presence year-round (T Gupta et al. unpubl. data 2023).

Young-of-the-year Scalloped Hammerheads have also been recorded in this area from fisher catch (56 cm and 51 cm TL, with umbilical scars almost completely healed). Fisher LEK indicates the presence of small Scalloped Hammerheads year-round, however, catch numbers are low and there is currently limited evidence for their use of the area for any life history purposes.

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