

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

## BEKODOY-TOLIARA ISRA

### Western Indian Ocean Region

#### SUMMARY

Bekodoy-Toliara is located in the southwest region of Madagascar, stretching ~90 km along the coastline of the Toliara Province. The area contains reef systems made up of fringing and barrier reefs, as well as shallow lagoons hosting patch reefs and seagrass beds. Bekodoy-Toliara is within two Ecologically or Biologically Significant Marine Areas and overlaps the Soriake Marine Protected Area and North Salary Key Biodiversity Area. Within the area there are: **threatened species**; **range restricted species**; and **reproductive areas** (Malagasy Blue-spotted Guitarfish *Acroteriobatus andysabini*).

#### CRITERIA

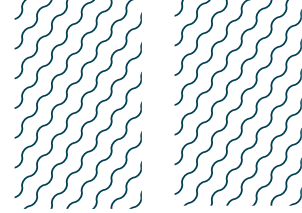
**Criterion A - Vulnerability; Criterion B - Range-Restricted;**  
**Sub-criterion C1 - Reproductive Areas**

MADAGASCAR

0-80 metres

775.73 km<sup>2</sup>





## DESCRIPTION OF HABITAT

Bekodoy-Toliara is located on the southwestern coastline of Madagascar. The northern section of the area is characterised by a fringing reef system stretching south, with an 8 km wide lagoon present in the southern section. This lagoon, the Bay of Ranobe, is enclosed by a 32 km long fringing reef and contains numerous patch reefs, seagrass beds, and mangroves at its northern and southern ends. The area falls within the Western and Northern Madagascar marine ecoregion, which is shared only with the Comoros Archipelago (Spalding et al. 2007).

The area is located within the Mozambique Channel and Northern Mozambique Channel Ecologically or Biologically Significant Marine Areas (EBSAs; CBD 2023a, 2023b), the North Salary Marine Protected Area (MPA) Key Biodiversity Area (KBA 2023), and overlaps the Soariake Marine Protected Area, and three Locally Managed Marine Areas (LMMAs) located within the Bay of Ranobe: Ankaranjelita, Massif des Roses, and Vatosoa.

This Important Shark and Ray Area is benthopelagic and is delineated from inshore and surface waters (0 m) to 80 m based on the bathymetry of the area.

## ISRA CRITERIA

### CRITERION A - VULNERABILITY

The one Qualifying Species within the area is considered threatened with extinction according to the IUCN Red List of Threatened Species™. The Malagasy Blue-spotted Guitarfish is assessed as Endangered (Jabado et al. Submitted).

### CRITERION B - RANGE RESTRICTED

This area holds the regular presence of the Malagasy Blue-spotted Guitarfish as a resident range restricted species. This species occurs year-round in the area and has been regularly reported from artisanal fishery landing surveys between 2007–2023 (Humber et al. 2017; Ghilardi et al. 2019; Wildlife Conservation Society [WCS] unpubl. data 2023). For example, between 2018–2023 at least 56 Malagasy Blue-spotted Guitarfish were recorded from 14 surveys at a landing site in Salary, south of Bekodoy (mean = 2.4, min = 1, max = 12; WCS unpubl. data 2023). This species only occurs in the Agulhas Current Large Marine Ecosystem and is endemic to Madagascar.

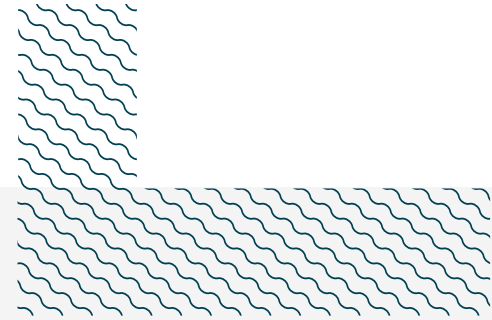
### SUB-CRITERION C1 - REPRODUCTIVE AREAS

Bekodoy-Toliara is an important reproductive area for one ray species.

In the Bay of Ranobe, 226 Malagasy Blue-spotted Guitarfish (formerly referred to as *Acroteriobatus leucospilus* [Weigmann et al. 2021]) were caught between 2015 and 2018. Of these individuals, 27% were below the size-at-maturity of the species (<56.5 cm total length [TL]; Weigmann et al. 2021), with eight specimens classified as neonates (<30 cm TL; Ghilardi et al. 2019). Given the restricted range, and the rarity of landings for this species, records of neonates from this area are considered important.

Of note is that of 239 genetic samples taken from sharks and rays caught in traditional and artisanal fisheries and landed in Antongil Bay in northeast Madagascar between 2001 and 2002, only one

sample was attributed to an unknown species of guitarfish (Doukakis et al. 2011), while in Antsiranana in northern Madagascar, 640 sharks and rays were sampled from artisanal fisheries between 2001 and 2004, none of which were guitarfishes (Robinson & Sauer 2013). These studies highlight the importance of this area for the Malagasy Blue-spotted Guitarfish in comparison to other areas of Madagascar.



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### **Suggested citation**

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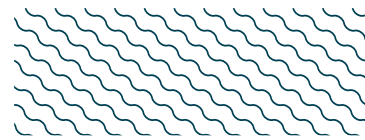
## QUALIFYING SPECIES

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>Acroteriobatus andysabini</i>	Malagasy Blue-spotted Guitarfish	EN	0-80	X	X	X							

## SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
<b>SHARKS</b>		
<i>Carcharhinus amblyrhynchos</i>	Grey Reef Shark	EN
<i>Carcharhinus brevipinna</i>	Spinner Shark	VU
<i>Carcharhinus leucas</i>	Bull Shark	VU
<i>Carcharhinus limbatus</i>	Blacktip Shark	VU
<i>Galeocerdo cuvier</i>	Tiger Shark	NT
<i>Hemipristis elongata</i>	Snaggletooth Shark	VU
<i>Loxodon macrorhinus</i>	Sliteye Shark	NT
<i>Negaprion acutidens</i>	Sharptooth Lemon Shark	EN
<i>Pseudoginglymostoma brevicaudatum</i>	Shorttail Nurse Shark	CR
<i>Sphyrna lewini</i>	Scalloped Hammerhead	CR
<i>Sphyrna mokarran</i>	Great Hammerhead	CR
<i>Stegostoma tigrinum</i>	Indo-Pacific Leopard Shark	EN
<i>Triaenodon obesus</i>	Whitetip Reef Shark	VU
<b>RAYS</b>		
<i>Aetobatus ocellatus</i>	Spotted Eagle Ray	EN
<i>Himantura uarnak</i>	Coach Whipray	EN
<i>Neotrygon caeruleopunctata</i>	Bluespotted Maskray	LC
<i>Pastinachus ater</i>	Broad Cowtail Ray	VU
<i>Pateobatis fai</i>	Pink Whipray	VU
<i>Rhina ancylostomus</i>	Bowmouth Guitarfish	CR
<i>Rhinoptera jayakari</i>	Oman Cownose Ray	EN
<i>Rhynchobatus australiae</i>	Bottlenose Wedgefish	CR
<i>Taeniura lymma</i>	Bluespotted Lagoon Ray	LC
<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](http://www.iucnredlist.org). Abbreviations refer to: CR, Critically Endangered; EN, Endangered; VU, Vulnerable; NT, Near Threatened; LC, Least Concern; DD, Data Deficient.

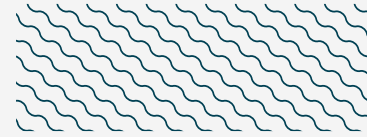


## SUPPORTING INFORMATION

There are additional indications that this area is important for reproduction and undefined aggregations of two shark species.

Between 2007-2012, Scalloped Hammerheads accounted for 30.7% of fisheries landings data from this region, comprising 3,505 individuals (mean of 584 per year), with size ranging between 28 cm and 383 cm TL (Humber et al. 2017). The main gears used to catch sharks in the area are longlines (which generally have an anchor line 50-100 m long) and gillnets which are usually set in water ~30 m deep (McVean et al. 2006; Kiszka et al. 2014), suggesting that the maximum depth being fished is less than 100 m. Of note is that a similar study conducted in the north of Madagascar reported 149 Scalloped Hammerheads between 2001-2004 (mean of 37 per year) (Robinson & Sauer 2013), highlighting the importance of the area for this species. However, further investigations are required to determine the nature and function of these aggregations.

In 2018, a large pregnant Bull Shark was caught by villagers from the Bay of Ranobe which was carrying near-term pups (M Ghilardi pers. obs. 2023). The estuaries of this area could represent an optimal place to give birth. Further, Bull Sharks have been observed to migrate to Madagascar to give birth (Lea et al. 2015).



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