

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

## THONGALAND TRANSBOUNDARY CORRIDOR ISRA

### Western Indian Ocean Region

#### SUMMARY

Thongaland Transboundary Corridor is located off the coast of northeastern South Africa and southern Mozambique. The area lies in a unique biogeographic transitional zone between the subtropical east coast of South Africa and the tropical coast of central Mozambique, referred to as the Delagoa bioregion. The area is characterised by some of the highest latitude hard coral reefs in the world and some of the deepest nearshore canyons that break into the narrow continental shelf. The area overlaps with two marine protected areas: the Maputo National Park in southern Mozambique and the iSimangaliso Wetland Park in South Africa. It also overlaps with three Ecologically or Biologically Significant Marine Areas (Delagoa Shelf Edge, Canyons and Slope; Incomati River to Ponta do Ouro; and Mozambique Channel) and with two Key Biodiversity Areas (Ponta do Ouro Marine Reserve and iSimangaliso Wetland Park). Within this area there are: **threatened species** (e.g., Sand Tiger Shark *Carcharias taurus*) and **areas important for movement** (e.g., Blacktip Shark *Carcharhinus limbatus*).

#### CRITERIA

##### Criterion A - Vulnerability; Sub-criterion C4 - Movement Areas

— —  
**MOZAMBIQUE**  
**SOUTH AFRICA**

— —  
**0-1,068 metres**

— —  
**8,559.6 km<sup>2</sup>**



## DESCRIPTION OF HABITAT

Thongaland Transboundary Corridor is located in northeastern South Africa and southern Mozambique. The area lies in a unique biogeographic transitional area between the subtropical east coast of South Africa and the tropical coast of central Mozambique (Turpie et al. 2000), referred to as the Delagoa bioregion (Sink et al. 2004). The Agulhas Current is the dominant oceanographic feature along this coastline due to the relatively narrow continental shelf along this coast (Schumann 1988; Ramsay 1994; Lutjeharms 2006). Coral reef formations within the Maputo National Park Marine Protected Area (MPA) in Mozambique and the adjacent iSimangaliso Wetland Park MPA in South Africa are some of the highest latitude hard coral reefs in the world (Riegl et al. 1995). These hard coral communities are typically dominated by *Acropora* and *Montipora* species that form a veneer on top of existing substrate (Ramsay 1994). Reef growth primarily takes place on fossilised coastal dunes running parallel to the coast consisting of Late Pleistocene beach rock (Ramsay 1994). Generally, hard coral coverage and colony size increases from the surface to 25 m deep, and thereafter, due to light limitation, is replaced by non-photosynthetic organisms such as sponges and ascidians (Riegl et al. 1995). The general sub-tidal reef habitat is diverse with a mix of sand dominated substrate, low profile sparse reef, alcyonarian coral dominated reef, or scleractinian coral dominated reef (Ramsey 1994; Pereira 2003).

The area overlaps with the Maputo National Park MPA and the iSimangaliso MPA, which is also a World Heritage Site. It also overlaps with three Ecologically or Biologically Significant Marine Areas (EBSAs; Delagoa Shelf Edge, Canyons and Slope; Incomati River to Ponta do Ouro; and Mozambique Channel; CBD 2023a, 2023b, 2023c) and with two Key Biodiversity Areas (Ponta do Ouro Marine Reserve and iSimangaliso Wetland Park; KBA 2023a, 2023b).

This Important Shark and Ray Area is benthopelagic and is delineated from inshore and surface waters (0 m) to 1,068 m based on the bathymetry of the area.

## ISRA CRITERIA

### CRITERION A – VULNERABILITY

Four 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 Sand Tiger Shark (Rigby et al. 2021a) and the Vulnerable Bull Shark (Rigby et al. 2021b), Blacktip Shark (Rigby et al. 2021c), and Reef Manta Ray (Marshall et al. 2022a).

### SUB-CRITERION C<sub>4</sub> – MOVEMENT AREAS

Thongaland Transboundary Corridor is an important movement area for four shark and one ray species.

Passive acoustic telemetry with receivers mostly on nearshore reefs demonstrated that Bull Sharks (n = 41) tracked over 8–10 years moved extensively within the area (Daly et al. 2014; Lubitz et al. 2023). Adult Bull Sharks seasonally move through the area to the Pinnacle Reef in the northern section to take advantage of feeding opportunities associated with a spawning aggregation of Giant Trevally *Caranx ignobilis* during the austral summer (Daly et al. 2014; Lubitz et al. 2023). Although there was some individual variation in movement, sharks mostly moved southward of Pinnacle Reef after the spawning aggregation and northward in winter showing clear seasonal and predictable movement

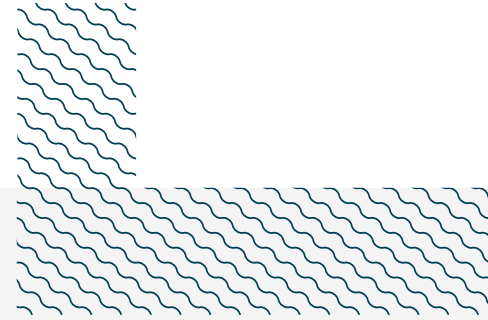
through the area (Lubitz et al. 2023). Many of the Bull Sharks that left the area during longer migrations returned in subsequent seasons (Daly et al. 2014), further highlighting the importance of this movement corridor. Results from archival satellite tags of Bull Sharks tagged in southern South Africa (n = 5) also showed that they migrate to and through the area (Lubitz et al. 2023).

Adult Blacktip Sharks tracked with acoustic tags (n = 25) over four years and on 28 acoustic receivers located throughout the area confirmed that the species moves extensively within the area and may use it as a migratory corridor. Tagged sharks spent extensive time in the area in summer (December to March) before moving southward through the area and beyond to the southern coast of KwaZulu-Natal in South Africa as they appear to time their migration with the arrival of the sardine run in May. In July, the tagged sharks migrated northward back through the Thongaland Transboundary Corridor as they move to central Mozambique (Daly et al. 2023).

Female Sand Tiger Sharks seasonally swim to, and within, the area to gestate in warmer waters during summer (Bass et al. 1975; Staiger 2020). During this phase of the life cycle, they form aggregations at several reefs in the area and frequently move between aggregation sites, with 20% of individuals (n = 321) photo-identified at multiple gestation aggregation sites in the southern and central zones (Staiger 2020). All individuals identified in 2019–2020 were females and most (66.6%) had clear mating scars, with pregnancy confirmed in some cases from video showing a pup moving inside the abdomen (Staiger 2020). Their main aggregation sites are Raggie Reef in the very south, Quarter Mile in the central zone, and Inhaca at the northern end, meaning that their movements span the entire length of Thongaland Transboundary Corridor. There was a clear seasonal pattern in movement from south to north early in the season and then back to the south later in summer, supporting the seasonal migration undertaken by Sand Tiger Sharks in this area (Staiger 2020).

Tiger Sharks moved widely within the area, including over deeper waters up to the 1,000 m isobath. The 26 sub-adult and adult Tiger Sharks fitted with SPOT satellite and acoustic tags in the area moved widely within the larger region but had a main hotspot of extensive movements in the central to northern section of the area, with a secondary hotspot outside the area at Aliwal Shoal (Daly et al. 2018). Thongaland Transboundary Corridor connects a large part of their movement zone between these two hotspots. Additionally, some Tiger Sharks were tagged outside of the area but migrated to it and then moved within the area. Long-term acoustic tag data (six years) also confirms that Tiger Sharks return repeatedly to the Thongaland Transboundary Corridor over multiple years (R Daly unpubl. data 2023).

Reef Manta Rays move throughout the area. Initial results from 12 Reef Manta Rays fitted with acoustic and PSAT satellite tags showed that they move extensively through the area, with nine tagged individuals detected on 15 of 28 receivers active in the area over an initial monitoring period of six months. Many individuals swam between sites in the southern section of the area, and three Reef Manta Rays moved between there and Pinnacle Reef in the central zone (~110 km), highlighting the importance of the Thongaland Transboundary Corridor for their movements. The northern section was also important; Reef Manta Rays (n = 19) were photo-identified here as well as further north in Mozambique, indicating that they also moved through the whole area and beyond to reefs in the Inhambane Province of Mozambique (Marshall et al. 2022b; M Carpenter unpubl. data 2023).



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## **Suggested citation**

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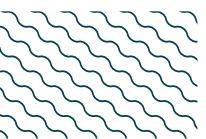
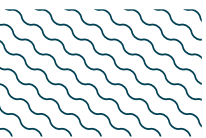
## QUALIFYING SPECIES

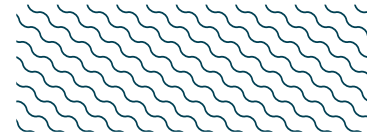
Scientific Name	Common Name	IUCN Red List Category	Global Depth Range (m)	ISRA Criteria/Sub-criteria Met							
				A	B	C1	C2	C3	C4	C5	D1
<b>SHARKS</b>											
<i>Carcharhinus leucas</i>	Bull Shark	VU	0-256	X					X		
<i>Carcharhinus limbatus</i>	Blacktip Shark	VU	0-140	X					X		
<i>Carcharias taurus</i>	Sand Tiger Shark	CR	0-232	X					X		
<i>Galeocerdo cuvier</i>	Tiger Shark	NT	0-1,257						X		
<b>RAYS</b>											
<i>Mobula alfredi</i>	Reef Manta Ray	VU	0-711	X					X		

## SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
<b>SHARKS</b>		
<i>Carcharhinus amblyrhynchos</i>	Grey Reef Shark	EN
<b>RAYS</b>		
<i>Rhynchobatus djiddensis</i>	Whitespotted Wedgefish	CR

*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.*



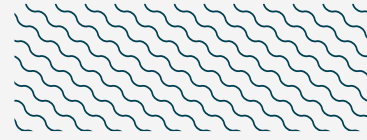


## SUPPORTING INFORMATION

There are additional indications that the area may also be important for movements of Grey Reef Shark and Whitespotted Wedgefish.

All 25 sub-adult and adult Grey Reef Sharks fitted with acoustic tags throughout the northern and central zones of the area showed some movement within the area. Tagged sharks were consistently detected on 28 acoustic receivers located throughout the area over a period of 2-4 years, particularly in the central to northern zones of the area (Daly et al. 2023). However, no regular or predictable movement pattern was apparent.

Whitespotted Wedgefish also move throughout this area, as shown by a long-term study that tagged 4,768 individuals and recaptured 340 individuals (Jordaan et al. 2021). Juveniles were typically recaptured within 5 km of the release location. Adults on the other hand exhibited movements of >100 km, mostly recorded in the southern part of the area (Jordaan et al. 2021). Additionally, four acoustically tagged individuals were detected both in the central and northern zones of the area (R Daly unpubl. data 2023), and their entire depth range is within the boundaries of the area. Although it appears that Thongaland Transboundary Corridor is important for their movements, no regular or predictable movement pattern was apparent.



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