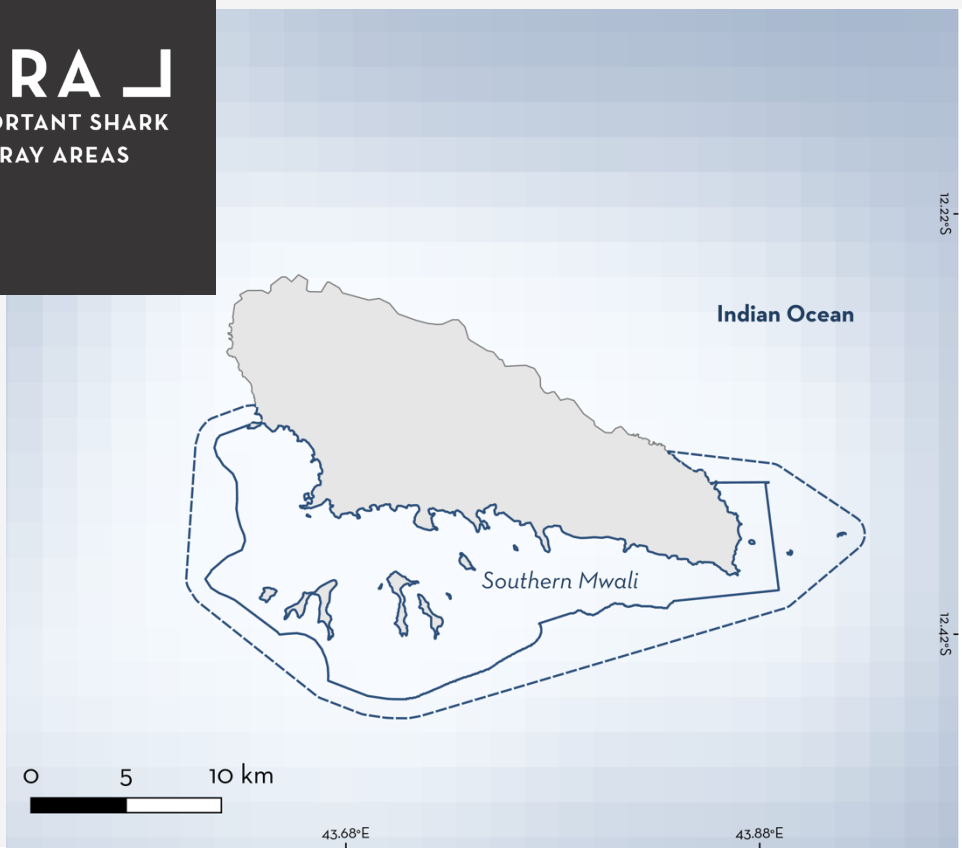
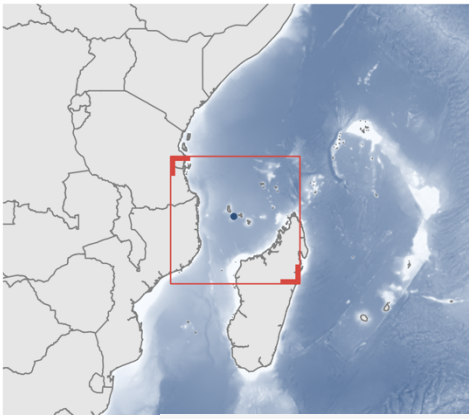
ISRA
IMPORTANT SHARK AND RAY AREAS





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

SOUTHERN MWALI ISRA

Western Indian Ocean Region

COMOROS

0–100 metres

187.39 km²

SUMMARY

Southern Mwali is a volcanic and oceanic island located in Comoros, in the centre of the northern Mozambique Channel. The area includes the waters off the south coast of Mwali island and its ten islets. The diversity of coastal and benthic habitats include rocky shores, beaches, mangrove forests, seagrass beds, coral reefs, deep lagoons with sandy substrates, and pelagic waters. The area sits within Mohéli National Park and two Ecologically or Biologically Significant Marine Areas and overlaps with the Mohéli National Park Key Biodiversity Area. Within this area there are: **threatened species** (e.g., Reef Manta Ray *Mobula alfredi*); **reproductive areas** (Blacktip Reef Shark *Carcharhinus melanopterus*); and **feeding areas** (e.g., Reef Manta Ray).

CRITERIA

Criterion A – Vulnerability; Sub-criterion C1 – Reproductive Areas; Sub-criterion C2 – Feeding Areas

DESCRIPTION OF HABITAT

Southern Mwali lies in the Comoros Archipelago in the northern Mozambique Channel. The area is influenced by the South Equatorial Current deflecting around the northern tip of Madagascar, with the formation of the Comoros gyre around the archipelago creating a series of eddies (Obura et al. 2018). From December to March (*Kaskazi*), the dominant winds blow from the northwest, and from June to November (*Kusi*), the dominant winds blow from the southeast over the Comoros Basin. Wind-driven upwelling and downwelling occur to the north and the south of the Comoros Islands, respectively, during the southeast monsoon, due to the local effect of the islands on the wind field. Opposite patterns occur after the monsoon reverses (Collins 2013). The area is located along the coast of the volcanic island of Mwali and encompasses a variety of geomorphological features, including inner-seas exposed fringing reef (forereef and reef flat), inner-seas patch-reef complex (forereef, reef flat, and reef terrace), deep lagoon, outer barrier reef complex (deep drowned reef flat, pass, and subtidal reef flat), and small islets (Klaus 2014).

Southern Mwali lies within Mohéli National Park which is part of the UNESCO Mwali Biosphere Reserve and overlaps with Mohéli Marine Park Key Biodiversity Area (KBA 2023). The area also lies within the Northern Mozambique Channel and the Mozambique Channel Ecologically or Biologically Significant Marine Areas (CBD 2023a, 2023b).

This Important Shark and Ray Area is benthopelagic and extends from inshore and surface waters (0 m) to 100 m depth based on the bathymetry of the area and the observations of the Qualifying Species.

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 Blacktip Reef Shark (Simpfendorfer et al. 2020) and Reef Manta Ray (Marshall et al. 2022).

CRITERION C1 – REPRODUCTIVE AREAS

Southern Mwali is an important reproductive area for one shark species.

Neonate and young-of-the-year (YOY) Blacktip Reef Sharks are observed year-round in mangrove and shallow rocky zones in this area. In a fishing survey between 6–11 April 2023, in a shallow mangrove and rocky area between Nioumachoua and Hamavuna along the south coast of Mwali, 10 neonates (defined by an umbilical scar fully or semi-open) and four YOY (defined by a fully healed umbilical scar; Weideli et al. 2019) were caught. Sizes ranged 52–92 cm total length (TL), including an additional larger juvenile captured, however, no adults were caught (J Rambahiniarison unpubl. data 2023). Local Ecological Knowledge suggests that this area is regularly used by neonates and YOY Blacktip Reef Sharks, with reports from 2015–2023 (J Rambahiniarison unpubl. data 2023). Local fishers reported catches of 'small' individuals (within the same size range as reported here) year-round in this area. Although the local seasonal trend remains unclear, daily catches of 4–5 'small' individuals are reported in the month-long Ramadan period, during which a local regulation allows the use of a limited number of nets within the National Park (Ramadan has fallen between January

and June over the 2015–2023 period). A few individuals are reportedly also occasionally caught with handlines throughout the rest of the year (J Rambahiniarison unpubl. data 2023).

SUB-CRITERION C2 – FEEDING AREAS

Southern Mwali is an important feeding area for one shark and one ray species.

Blacktip Reef Sharks have been described by local fishers to seasonally predate on hatchling sea turtles off the beach in Itsamia, in the southeastern part of Mwali Island (J Rambahiniarison unpubl. data 2023). Fishers have observed this event regularly during the hatching season at high tide over the past 30 years (1990–2023) (A Mchinda pers. comm. 2023). This zone is known as the main Green Turtle *Chelonia mydas* nesting beach on Mwali Island, with nesting occurring and peaking between March–August (Bourjea et al. 2015). Over a seven-year study, ~65,000 nests were recorded in this zone (Bourjea et al. 2015). Blacktip Reef Sharks are known to seasonally feed on turtle hatchlings elsewhere in the world too (Bashir et al. 2020), and it is likely that Southern Mwali is an important seasonal feeding area for the species.

Feeding aggregations of Reef Manta Rays (3–5 individuals) have been reported since 2014 by local dive operators in the area locally known as Mtsaka between Wenefu and Sanzi ilsets from April to September (Laka Lodge and Massiwa Diving Center pers. comm. 2023). More detailed reports from 2023 showed that Reef Manta Rays were observed feeding every time the operators went to the location (~4 time per week) in June and every day in July, in groups of 2–6 individuals. In August, they were recorded feeding half of the time during ~4 trips per week (I Abdou pers. comm. 2023). These feeding aggregations coincide with the *Kusi* season from May–September (Laka Lodge and Massiwa Diving Center pers. comm. 2023). To date, it is the only area where Reef Manta Rays are regularly reported in Comoros and where feeding has been noted. The currents between the two islets coupled with the shape of the bay south of Wenefu islet may be concentrating plankton at this site, explaining the feeding aggregations seen here but not elsewhere in the country.

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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 melanopterus	Blacktip Reef Shark	VU	0–75	X		X						
RAYS												
Mobula alfredi	Reef Manta Ray	VU	0–711	X			X					

SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
SHARKS		
Carcharhinus amblyrhynchos	Grey Reef Shark	EN
Carcharhinus falciformis	Silky Shark	VU
Galeocerdo cuvier	Tiger Shark	NT
Nebrius ferrugineus	Tawny Nurse Shark	VU
Rhincodon typus	Whale Shark	EN
Sphyrna lewini	Scalloped Hammerhead	CR
Triaenodon obesus	Whitetip Reef Shark	VU
RAYS		
Himantura uarnak	Coach Whipray	EN
Neotrygon caeruleopunctata	Bluespotted Maskray	LC
Pastinachus ater	Broad Cowtail Ray	VU
Rhina ancylostomus	Bowmouth Guitarfish	CR
Torpedo sinuspersici	Gulf Torpedo	DD
Urogymnus asperrimus	Porcupine 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 Southern Mwali is an important area for aggregations and movement of five shark and one ray species.

Tawny Nurse Sharks have been regularly observed by recreational divers, resting under rocks or in cracks along walls off the Magnouni islets in the area between 2016–2023 (Laka Lodge pers. comm. 2023). As the species is mainly nocturnal, it is likely that they are using the area to rest during the day and move to hunt at night fall (Simpfendorfer et al. 2021). Tawny Nurse Sharks are seen actively swimming at a nearby dive site around the islet of Wenefu, suggesting that the habitat at Magnouni is particularly used for resting. The dive site is known as 'the dormitory', reflecting the regular occurrence of resting Tawny Nurse Sharks. Despite a low diving effort overall (a few divers diving the site a couple of times per month on average), a mean of two individuals (range = 1–3 individuals) are sighted resting during half of the dives at this site over the past seven years.

Silky Sharks are caught seasonally between November–May by artisanal fishers in the south-southwestern pelagic waters of this area. One fisher can catch up to four individuals in a row either using longline or handline, usually soaking hooks at depths between 10–40 m. Their aggregation appears to be linked to a productive fishing ground and a feeding area for the species, but further research is needed to understand the function of the aggregations.

Aggregations of Grey Reef Sharks (up to 20 individuals, mean = 12 individuals per aggregation, n = 4) were reported from divers in October 2018 around Mchaco islet, between 5–30 m depth (R Krebs pers. comm. 2023). While this dive site is not often visited by the local dive centre, it is local knowledge that aggregations of Grey Reef Sharks can occur year-round around this islet (Kiszka et al. 2009). Further information is required to understand the nature and function of these aggregations.

Scalloped Hammerheads and Tiger Sharks are regularly caught by artisanal fishers in the east of this area, particularly near the small islet of Mchaco. Young-of-the-year and juvenile Scalloped Hammerheads are also caught seasonally during the *Kaskazi* (November–January) by fishers using hook-and-line in the sheltered lagoon of Sambia. This lagoon is enclosed between a long stretch of mangrove forests with an adjacent shallow fringing reef and a large shallow terrace inner-seas patch-reef complex. This habitat suggests that the area is likely to be an important site for young Scalloped Hammerheads, and potentially a nursery area.

Satellite tracks of a Tiger Sharks tagged in Kenya showed movement through the area with 18% of total track days spent in Comoros waters (Barkley et al. 2019). In September 2023, a gravid female was caught in the area, carrying about 40 near-term pups. The area might also be a potential feeding area for the species given the high density of sea turtles (i.e., Green Turtle *Chelonia mydas* and Hawksbill Turtle *Eretmochelys imbricata*) nesting, reproducing, and feeding in the area. Fishers occasionally catch Tiger Sharks and report that they consistently have sea turtle carcasses in their stomach content.

Reef Manta Rays are occasionally observed by divers at a site west of the islet of Mea, with a behaviour description corresponding to cleaning, as they are slowly hovering over a small patch of coral in 20 m depth, where cleaner wrasses are present. However, as the diving at that site is sporadic, no assessment of the regularity of this occurrence can be made.

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