

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

SOUTHWEST INDIAN OCEAN RIDGE ISRA

Western Indian Ocean Region

SUMMARY

Southwest Indian Ocean Ridge is a deepwater, open ocean area in the southwestern Indian Ocean ~1,500 km south of Madagascar, in areas beyond national jurisdiction (ABNJ). The area is characterised by a large ridge that spans from the southwest to the northeast. Southwest Indian Ocean Ridge overlaps with the Agulhas Front Ecologically or Biologically Significant Marine Area. Within the area there are **range-restricted species** (Seafarer’s Ghostshark *Chimaera willwatchi*) and **reproductive areas** (Southern Lanternshark *Etmopterus granulosus*).

CRITERIA

Criterion B - Range Restricted; Sub-criterion C1 - Reproductive Areas

—	—
ABNJ	—
—	—
89-1,500 metres	—
—	—
59,335.23 km²	—
—	—





DESCRIPTION OF HABITAT

Southwest Indian Ocean Ridge lies on a long deepwater ridge ~1,500 km south of Madagascar in the southwestern Indian Ocean. The large ridge system is a mid-ocean ridge at the divergent tectonic boundary of the Somali Plate and the Antarctic Plate (Goslin et al. 1980). In the area, the continuous ridge runs from southwest to northeast. The depth of the area ranges from 145–5,800 m with a mean of 2,740 m. The geological features of the area mainly include ridges and spreading ridges, with several seamounts rising higher into the water column.

The area partly overlaps within the Agulhas Front Ecologically or Biologically Significant Marine Area (EBSA; CBD 2023). Parts of the Southwest Indian Ocean Ridge have been designated as Benthic Protected Areas (BPAs; Rogers et al. 2017).

This Important Shark and Ray Area is benthic and extends from 89–1,500 m, based on the bathymetry of the area and the global depth ranges of the Qualifying Species.

ISRA CRITERIA

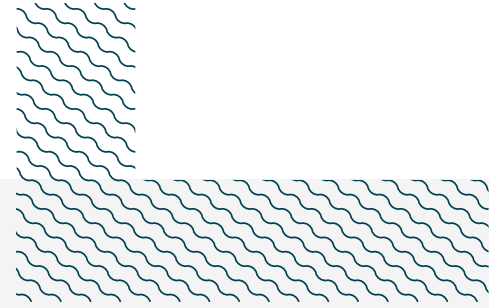
CRITERION B – RANGE RESTRICTED

The area holds the regular presence of the Seafarer’s Ghostshark as a resident range-restricted species. This species was recently described from the area and is only known from a small region, with additional specimens collected from Walters Shoals and the northern part of the Madagascar Ridge (Clerkin et al. 2017). The species was frequently caught as bycatch in benthic and mid-water trawls and was collected in 2000, 2001, 2012, and 2014 in the area (Clerkin et al. 2017).

SUB-CRITERION C₁ – REPRODUCTIVE AREAS

Southwest Indian Ocean Ridge is an important reproductive area for one shark species.

Pregnant female Southern Lanternshark have been recorded from locations at depths between 500 and 1,300 m (Clerkin 2017, Nehmans 2019). Some pregnant specimens were also found elsewhere on the Southwest Indian Ocean Ridge, but of 78 individuals examined, most (75%) were concentrated in the area. Southern Lanternsharks comprise most of the deepwater shark bycatch in the broader southwestern Indian Ocean region, but this area was the clear hotspot for pregnant females. Elsewhere globally the species is also frequently caught but pregnant females are rarely observed (e.g., New Zealand; Wetherbee 1996; B Finucci pers. obs. 2023), underlining the importance of this area. The relative abundance of Southern Lanternsharks observed as bycatch in trawl fisheries on the Southwest Indian Ocean Ridge in 2012 and 2014 (n = 112 tows) was 3.96 sharks per tow, with tows of ~60 min (Clerkin 2017).



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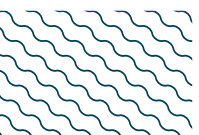
QUALIFYING SPECIES

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
SHARKS											
<i>Etmopterus granulosus</i>	Southern Lanternshark	LC	220-1,500			X					
CHIMAERAS											
<i>Chimaera willwatchi</i>	Seafarer's Ghostshark	DD	89-1,365		X						

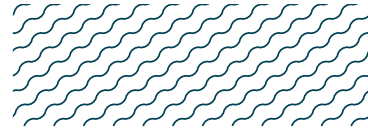
SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
SHARKS		
<i>Apristurus ampliceps</i>	Roughskin Catshark	LC
<i>Apristurus manocheriani</i>	Manocherian's Catshark	LC
<i>Apristurus sinensis</i>	South China Catshark	DD
<i>Bythaelurus naylori</i>	Duskynout Catshark	DD
<i>Centroscymnus coelolepis</i>	Portuguese Dogfish	NT
<i>Centroscymnus owstonii</i>	Roughskin Dogfish	VU
<i>Centroselachus crepidater</i>	Longnose Velvet Dogfish	NT
<i>Centrophorus granulosus</i>	Gulper Shark	EN
<i>Centrophorus squamosus</i>	Leafscale Gulper Shark	EN
<i>Dalatias licha</i>	Kitefin Shark	VU
<i>Deania calcea</i>	Birdbeak Dogfish	NT
<i>Etmopterus alphus</i>	Whitecheek Lanternshark	LC
<i>Etmopterus brosei</i>	Barrie's Lanternshark	LC
<i>Hexanchus griseus</i>	Bluntnose Sevengill Shark	LC
<i>Mitsukurina owstoni</i>	Goblin Shark	LC
<i>Pseudotriakis microdon</i>	False Catshark	LC
<i>Odontaspis ferox</i>	Smalltooth Sandtiger	EN
<i>Scymnodon macracanthus</i>	Largespine Velvet Shark	DD
<i>Zameus squamulosus</i>	Velvet Dogfish	LC

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 the Southwest Indian Ocean Ridge may be an important reproductive area for two shark species. This area is the only area where pregnant females for Longnose Velvet Dogfish and the False Catshark have been recorded. However, at this time, sample sizes for these species were small ($n = 4$ and 2 , respectively).

Southwest Indian Ocean Ridge is likely to be an important area with undefined aggregations of at least one other deepwater shark species. The relative abundance of Longnose Velvet Dogfish observed as fisheries bycatch in trawl fisheries in the area in 2012 and 2014 ($n = 112$ tows) was 1.02 sharks per tow (Clerkin 2017). This species, as well as others, have been regularly recorded during exploratory research surveys and as bycatch in fisheries operating on the Southwest Indian Ocean Ridge since the 1970s (e.g., Novikov et al. 2008; Paramonov 2012) and have also been recorded during *in-situ* biological surveys using remotely operated vehicles (ROVs) (e.g., Lindsay et al. 2000; Swanborn et al. 2023). Deepwater sharks are known to aggregate around seamounts; it is likely that this area is important for feeding and reproduction, but there are few data available at this time.



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