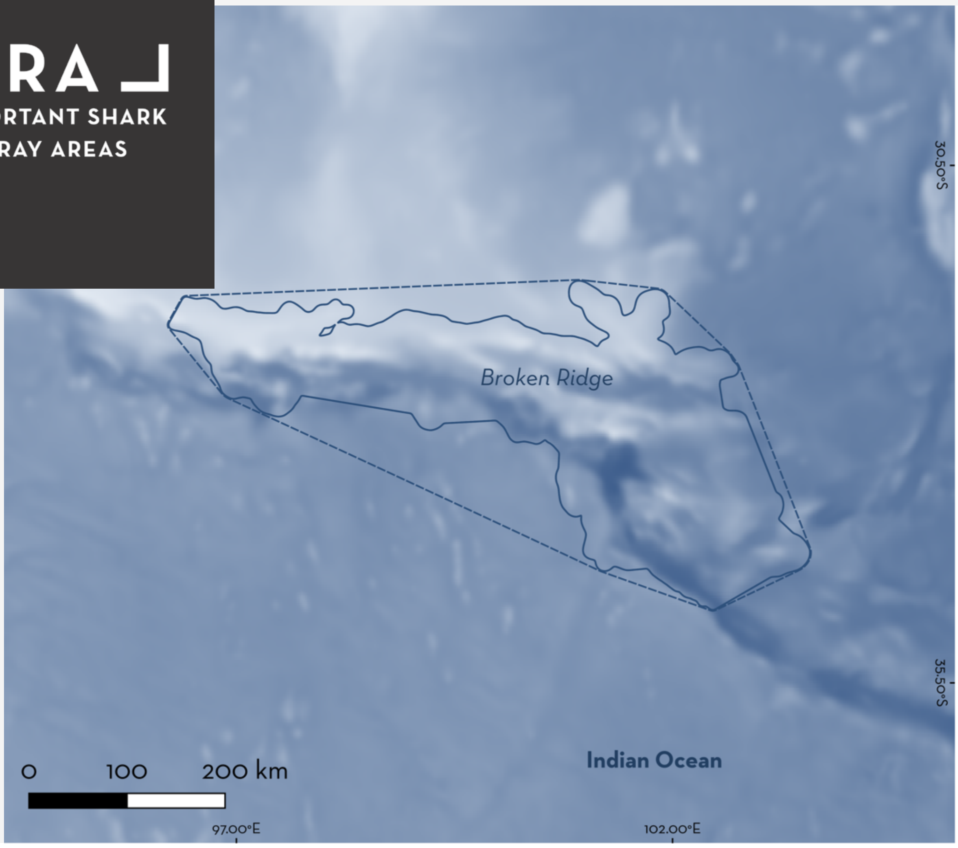
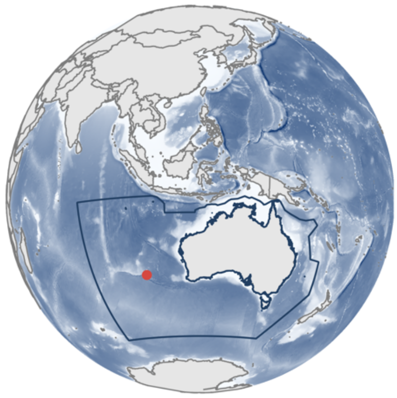
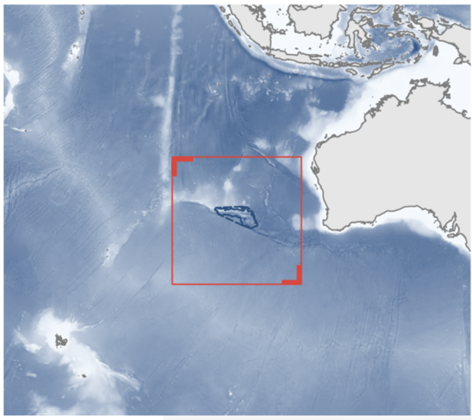
ISRA
IMPORTANT SHARK AND RAY AREAS







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

BROKEN RIDGE ISRA

Australia and Southeast Indian Ocean Region

ABNJ

0-180 metres

100,315 km²

SUMMARY

Broken Ridge is located in areas beyond national jurisdiction (ABNJ) in the southeast Indian Ocean. This offshore temperate pelagic area overlaps with the East Broken Ridge guyot, a bathymetric high with a localised gravity anomaly, that rises from ~3,000 m to 1,060 m. It is the southernmost and among the shallowest in a chain of gravimetric highs, heavily eroded and marked by slips and canyons. This area is influenced by interacting currents located in a dynamic part of the southeast Indian Ocean where east-flowing interior jets meet the poleward Leeuwin Current, and frequent eddies sweep across the ridge. The area overlaps with the East Broken Ridge Guyot Ecologically or Biologically Significant Marine Area. Within this area there are: **threatened species** and **reproductive areas** (Porbeagle *Lamna nasus*).

CRITERIA

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

sharkrayareas.org

DESCRIPTION OF HABITAT

Broken Ridge is located in areas beyond national jurisdiction (ABNJ) in the southeast Indian Ocean. This offshore temperate pelagic area is situated over the Broken Ridge, which is a continuous west-northwest trending oceanic plateau, more than 1,000 km in length and ~100 km wide (CBD 2025). This area is located above the East Broken Ridge guyot, a bathymetric high associated with a localised gravity anomaly at the eastern end of Broken Ridge. The guyot rises from depths of ~3,000 m to 1,060 m and is separated from Broken Ridge by deep water (CBD 2025). It is the southernmost and among the shallowest of a series of gravimetric highs. These highs correspond to guyots that rise 1,500–2,000 m above the seafloor but remain in very deep water (4,000–5,000 m) (CBD 2025). The East Broken Ridge guyot is marked by numerous slips and canyons along its flanks and shows evidence of heavy erosion.

This area is shaped by several interacting currents (Phillips et al. 2021). Circulation is shaped by east-flowing interior currents and the poleward boundary flow off Western Australia. Eastward jets in the subtropical gyre carry warm, relatively fresh water across the basin and help feed the Leeuwin Current, which runs south along the Western Australia coast. When the Leeuwin strengthens (notably in La Niña years), it sheds many eddies that drift west and south, stirring waters over and downstream of Broken Ridge. At intermediate depths, water from the Tasman Sea enters the Eastern Indian Ocean via the Tasman Leakage and turns northwest, adding well-ventilated Pacific water. Farther south, the Flinders Current splits near ~110°E, with one branch heading west, influencing the region's southern flank. Together, these flows and frequent eddies create a dynamic setting around Broken Ridge, sharpening fronts, mixing water masses, and shaping local productivity.

This area overlaps with the East Broken Ridge Guyot Ecologically or Biologically Significant Marine Area (CBD 2025).

This Important Shark and Ray Area is pelagic and is delineated from surface waters (0 m) to 180 m based on the depth range of Qualifying Species in the area.

ISRA CRITERIA

CRITERION A – VULNERABILITY

One Qualifying Species considered threatened with extinction according to the IUCN Red List of Threatened Species regularly occurs in the area. This is the Vulnerable Porbeagle (Rigby et al. 2019).

SUB-CRITERION C1 – REPRODUCTIVE AREAS

Broken Ridge is an important reproductive area for one shark species.

Between 1992–2011, commercial fisheries from pelagic longlines targeting mostly tuna in the Southern Ocean were monitored year-round (Semba et al. 2013). A total of 36,247 Porbeagles were captured with an effort of 212,622,118 hooks from the southern oceans, including the Indian Ocean (Semba et al. 2013). The results indicated that most neonate and young-of-the-year (YOY) Porbeagles (<78 cm precaudal length [PCL] or 100.2 cm total length [TL; Francis & Stevens 2000) were captured in this area compared to other areas across the southern oceans (Semba et al. 2013). Life-stage classification (i.e., <1 year-old) was based on body size and reported growth curves (Francis et al. 2007). Size-at-birth is reported at 68–78 cm TL and YOY are usually <102 cm TL (Francis & Stevens

2000; Francis et al. 2008; Ebert et al. 2021). Relative abundance was measured as standardised catch-per-unit-effort (CPUE; sharks/1,000 hooks).

This area had the highest CPUE for neonates and YOY of 1.0 compared to 0–0.5 in adjacent and distant areas of the Indian Ocean. Neonates and YOY occurred in this area from May–January but most of them were recorded from August–December, which is after the known peak of parturition (Semba et al. 2013). Given that females leave the pupping grounds soon after giving birth, pregnant females were not recorded (Semba et al. 2013). It is likely that females migrated north to give birth in the area before August (when there was low fishing effort) and returned to cooler waters after parturition (Semba et al. 2013). Similar behaviour for this species has been observed in the southwestern Pacific Ocean (Francis et al. 2015). Porbeagles generally segregate by temperature (and latitude), with neonates and YOY in warmer waters than adults and juveniles (Yatsu 1995; Semba et al. 2013). In the Indian Ocean, the sea surface temperature (SST) at capture for neonates was significantly higher than for juveniles and adults in every month analysed (Semba et al. 2013). In the South Pacific Ocean, the mean body weight of Porbeagles increases as the SST decreases (Yatsu 1995), supporting these results.

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Adriana Gonzalez Pestana (IUCN SSC Shark Specialist Group – ISRA Project) contributed and consolidated information included in this factsheet. We thank all participants of the 2025 ISRA Region 08 – Australia and Southeast Indian Ocean workshop for their contributions to this process.

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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												
Lamna nasus	Porbeagle	VU	0–1,809	X		X						

IUCN Red List of Threatened Species Categories are available by searching species names atwww.iucnredlist.org Abbreviations refer to: CR, Critically Endangered; EN, Endangered; VU, Vulnerable; NT, Near Threatened; LC, Least Concern; DD, Data Deficient.

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