

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

ELIZABETH REEF ISRA

Australia and Southeast Indian Ocean Region

SUMMARY

Elizabeth Reef is located in the southwest Pacific, ~560 km from mainland New South Wales, Australia. This remote area encompasses an atoll-like reef structure sitting on a seamount. It is characterised by a deep inner lagoon, coral ridges, sand flats, hard coral coverage, and macroalgae. The area is influenced by the Eastern Australian Current and by seasonal variation in sea surface temperature, upwelling, and Chlorophyll- α . The area overlaps with Lord Howe Marine Park. Within this area there are: **reproductive areas** (Galapagos Shark *Carcharhinus galapagensis*).

CRITERIA

Sub-criterion C1 - Reproductive Areas

—	—
AUSTRALIA	
—	—
0-20 metres	
—	—
85.75 km²	
—	—





DESCRIPTION OF HABITAT

Elizabeth Reef is located in the southwest Pacific, ~560 km from mainland New South Wales, Australia. This remote area encompasses an atoll-like reef structure sitting on a seamount. It is one of the two southernmost platform reefs in the world, alongside Middleton Reef (Carroll et al. 2021). The area includes exposed reef, inner lagoon, and back reef. It is characterised by a deep (130 m) lagoon, coral ridges, and depressions. There are sand flats with coarse sand and gravel substrates, and rhodoliths that only occur in waters >50 m depth. There is a high proportion of turfing macroalgae that covers the benthos, and sponges on substrate at >90 m depth (Carroll et al. 2021). The area has higher coverage of hard coral compared to nearby seamounts.

Elizabeth Reef is influenced by moderate wave action, with a mean tidal range of 2.6 m and the mean wave height is 2.0–2.5 m. The area is influenced by warm waters circulated to the area by the East Australian Current. It experiences seasonal upwelling in austral summer months, particularly on the east side of the reef. In spring and winter, southeasterly winds dominate. There is also seasonal variation in Chlorophyll- α concentrations, which are highest in winter and early autumn. Seasonal variation in mean sea surface temperature peaks in February (24.6°C) and troughs in August (19.5°C) (Carroll et al. 2021).

This area overlaps with Lord Howe Marine Park (Parks Australia 2025).

This Important Shark and Ray Area is benthic and pelagic and is delineated from inshore and surface waters (0 m) to 20 m based on the bathymetry of the area.

ISRA CRITERIA

SUB-CRITERION C₁ – REPRODUCTIVE AREAS

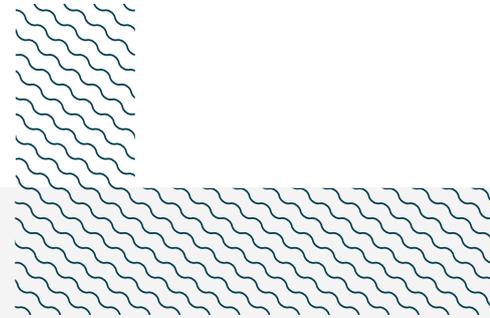
Elizabeth Reef is an important reproductive area for one shark species.

Galapagos Sharks have been regularly recorded during scientific surveys in this area undertaken in 2006, 2011, 2014, and 2020 (Hoey et al. 2014; Carroll et al. 2021; GlobalArchive 2025; The Fish Collective 2025). Data are available for Galapagos Sharks from the two latest survey years. Across five days in March 2014, underwater visual census field surveys using 250–500 m transects were undertaken in this area (Hoey et al. 2014). In total, 70 Galapagos Sharks were recorded, measuring 94.8 cm total length (TL) on average. Of these, at least 37 (52.9%) were neonate/young-of-the-year (YOY) measuring up to 100 cm TL (Hoey et al. 2014). The size-at-birth of this species is 57–80 cm TL (Ebert et al. 2021) and YOY measure up to 110 cm TL (Morales-Serrano & Gonzalez-Pestana 2024).

Synthesised data from the GlobalArchive and The Fish Collective for Baited Remote Underwater Video Station (BRUVS) surveys were extracted after quality control was undertaken using CheckEM (GlobalArchive 2025; The Fish Collective 2025; Gibbons et al. in press). In January and February 2020, 68 Galapagos Sharks estimated to measure 67.9–198.6 cm TL were observed between 2.1–97.7 m depth from 28 BRUVS deployed in this area (Carroll et al. 2021; GlobalArchive 2025; The Fish Collective 2025). Of these, 53 (77.9%) were neonate/YOY measuring 67.9–108.8 cm TL. Neonate/YOY individuals were recorded on every day of the surveys in 2020 (GlobalArchive 2025; The Fish Collective 2025).

This is one of the few known locations in the world where neonate/YOY Galapagos Sharks regularly and predictably occur across numerous years (Carroll et al. 2021; Morales-Serrano & Gonzalez-Pestana 2024; GlobalArchive 2025; The Fish Collective 2025; Gibbons et al. in press). Elizabeth Reef

has the second largest number of observations in Australia after Middleton Reef, ~50 km away (n = 116 individuals from similar surveys; GlobalArchive 2025; The Fish Collective 2025). Genetic sampling of the Galapagos Shark population at Elizabeth Reef suggests that it is distinct from the adjacent Lord Howe Island population (van Herwerden et al. 2009). Immature (possibly neonate/YOY) Galapagos Sharks have also been observed in aggregations with photographic evidence shared online by recreational snorkellers and anglers (e.g., Instagram 2021).



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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>Carcharhinus galapagensis</i>	Galapagos Shark	LC	0-285			X					

SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
SHARKS		
<i>Galeocerdo cuvier</i>	Tiger Shark	NT
RAYS		
<i>Mobula birostris</i>	Oceanic Manta 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.





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