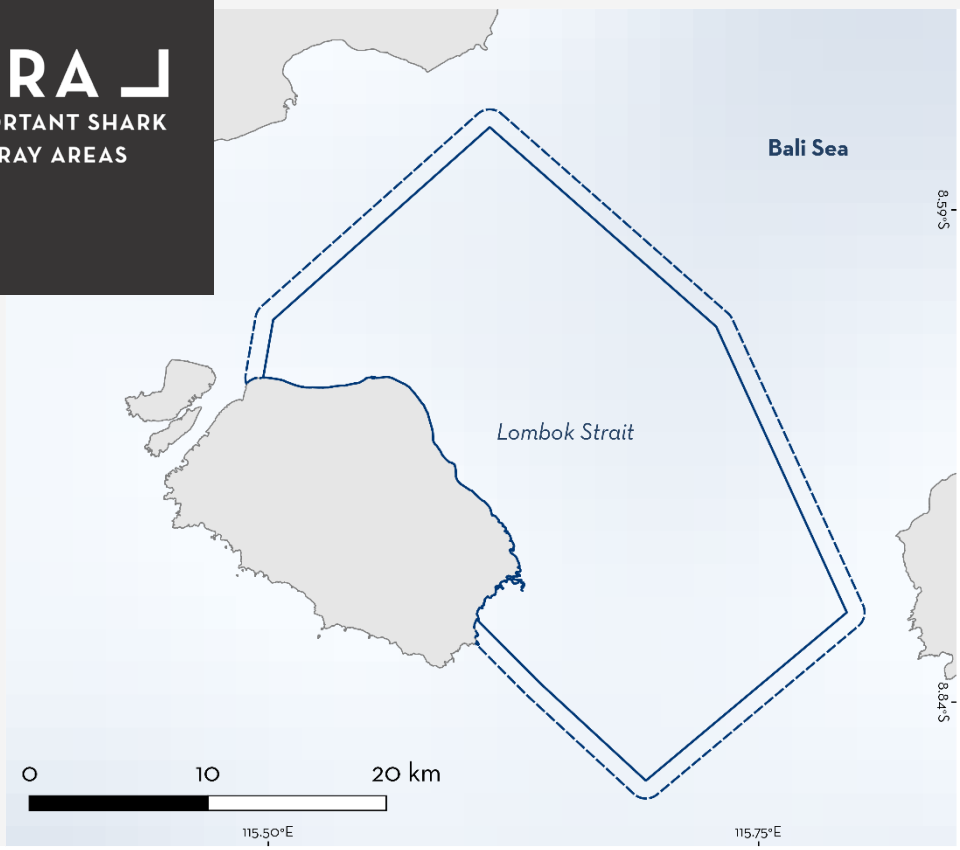
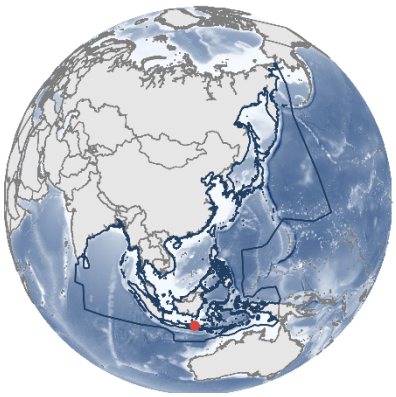
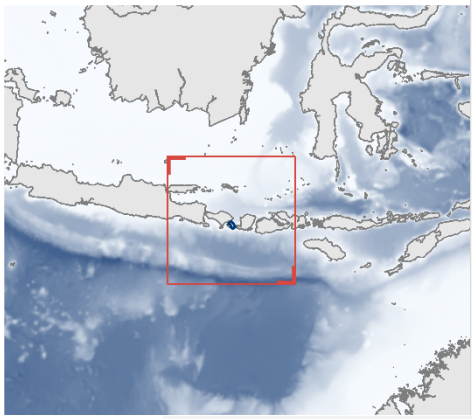
ISRA
IMPORTANT SHARK AND RAY AREAS







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

LOMBOK STRAIT ISRA

Asia Region

INDONESIA

0–300 metres

561.03 km²

SUMMARY

Lombok Strait is located off Nusa Penida between Bali and Lombok, Indonesia. The area is characterised by two large submarine platforms surrounded by pelagic waters. The area overlaps with the Nusa Penida marine protected area. Within this area there are: **threatened species**, **reproductive areas**, and **feeding areas** (Pelagic Thresher *Alopias pelagicus*).

CRITERIA

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

DESCRIPTION OF HABITAT

Lombok Strait is located off Nusa Penida between Bali and Lombok, Indonesia. The area connects the Bali Sea with the Indian Ocean. Lombok Strait is one of Indonesia's main throughflow routes where water is exchanged between the Indian and Pacific Ocean. The area includes two large submarine platforms (~300–350 m tall) with steep slopes, a permanent thermocline, and strong barotropic tidal currents (Syamsudin et al. 2019). Lombok Strait is also part of the Wallace Line, a channel which separates the distribution of fauna in western Indonesia and eastern Indonesia. The coastal habitat in the area is characterised by mangroves, seagrasses, and a high diversity of corals, while the area covers predominantly pelagic waters (Bachtiar 2001).

The area is influenced by the North Pacific Thermocline (Siswanto 2008) and is warmed by the Indonesian throughflow (Kida & Wijffels 2012). In January, Lombok Strait is influenced by contra flow current created by cyclonal vortexes. This leads to seasonal upwelling which creates high productivity due to seasonal upwelling (Siswanto 2008).

Lombok Strait partially overlaps with the Nusa Penida marine protected area (Sanjaya 2019).

This Important Shark and Ray Area is pelagic and is delineated from surface waters (0 m) to 300 m based on the depth range of the Qualifying Species in the area.

ISRA CRITERIA

CRITERION A – VULNERABILITY

One Qualifying Species in this area is considered threatened with extinction according to the IUCN Red List of Threatened Species. The Pelagic Thresher is assessed as Endangered (Rigby et al. 2019).

SUB-CRITERION C1 – REPRODUCTIVE AREAS

Lombok Strait is an important reproductive area for one shark species.

Pelagic Threshers use this area during pregnancy. Between July–November 2020 and 2021, 1,521 individuals were observed caught within the area and landed in Karangasem, Bali. Pelagic Threshers are caught with surface longlines 250–1,000 m in length, with 10–30 hooks, set to a depth of 50 m with a 2-hour soak time (WWF-ID unpubl. data 2020). In 2020, 1,138 were observed caught in the area and landed, with 153 being classed as neonate/young-of-the-year (YOY) measuring 150–180 cm total length (TL). The size-at-birth of the species is 130–160 cm TL (Ebert et al. 2021). In 2021, 383 were observed caught in the area and landed, with 105 being classed as neonate/YOY (WWF-ID unpubl. data 2020). The seasonality of neonate/YOY catches is July–October. In addition, 137 pregnant female Pelagic Threshers were observed caught in the area between August–September 2020 (n = 82) and July–September 2021 (n = 55) (Alghozali et al. 2023). Of the individuals landed, ~88% were female, of which 11% were pregnant as determined by dissection (WWF-ID unpubl. data 2020). In the same surveys, an additional 263 embryos (taken from dissected females), neonates, and YOY Pelagic Threshers were recorded (although separate data for each class are not available). Within this area, Pelagic Threshers give birth around two large submarine platforms (~300–550 m tall) (WWF-ID unpubl. data 2020).

SUB-CRITERION C2 – FEEDING AREAS

Lombok Strait is an important feeding area for one shark species.

The presence of Pelagic Threshers in influenced by the seasonal abundance of Frigate Tuna *Auxis thazard*. Frigate Tuna were the dominant prey (85.9% Index of Relative Importance) in a diet study of 149 stomachs between August-September 2020 and July-September 2021 (Alghozali et al. 2023). Pelagic Threshers were caught within the area by surface longline, with 9–13 hooks per gear, and landed nearby at Pengalon Beach, Bali. When Frigate Tuna abundance declines towards the end of October (as observed in 2020 and 2021), Pelagic Threshers move away from the area. This is supported by local ecological knowledge (LEK) from fishers who indicate that the shark abundance declines at the same time, as they move towards West Lombok. Frigate Tuna catches also decrease significantly by November (WWF unpubl. data 2020). Further, during landing data collection in 2020 and 2021, some fishers switched fishing gear (from the aforementioned surface longline to catch sharks, to target Frigate Tuna with surface gillnets). LEK also indicates that Frigate Tuna return to Lombok Strait, which highlights the regularity of the use of this area for feeding purposes.

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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												
Alopias pelagicus	Pelagic Thresher	EN	0–584	X		X	X					

SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
SHARKS		
Alopias superciliosus	Bigeye Thresher	VU
Carcharhinus falciformis	Silky Shark	VU
Carcharhinus melanopterus	Blacktip Reef Shark	VU
Chiloscyllium punctatum	Grey Carpetshark	NT
Galeocerdo cuvier	Tiger Shark	NT
Hemipristis elongata	Snaggletooth Shark	VU
Isurus oxyrinchus	Shortfin Mako	EN
Prionace glauca	Blue Shark	NT
Sphyrna lewini	Scalloped Hammerhead	CR
RAYS		
Mobula alfredi	Reef Manta Ray	VU
Pateobatis fai	Pink Whipray	VU
Pateobatis jenkinskii	Jenkins' Whipray	EN
Pteroplatytrygon violacea	Pelagic Stingray	LC
Taeniura lymma	Bluespotted Lagoon Ray	LC
Taeniurops meyeni	Blotched Fantail Ray	VU
Urogymnus granulatus	Mangrove Whipray	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.

REFERENCES

Alghozali FA, Salsabila R, Gustianto MW, Putri HM, Himawan MR, Yuneinu RR, Hatmoro CK, Rezkiani M. 2023. Diet analyses of the pelagic thresher shark, *Alopias pelagicus* (Lamniformes: Alopiidae), from the Lombok Strait waters, Indonesia. *Biodiversitas Journal of Biological Diversity* 24(7): 3708–3714. https://doi.org/10.13057/biodiv/d240707

Bachtiar I. 2001. Reproduction of three scleractinian corals (*Acropora cytherea, A. nobilis, Hydnophora rigida*) in eastern Lombok Strait, Indonesia. *Ilmu Kelautan* 21: 18–27.

Ebert DA, Dando M, Fowler S. 2021. *Sharks of the world: A complete guide*. Princeton: Princeton University Press.

Kida S, Wijffels S. 2012. The impact of the Indonesian Throughflow and tidal mixing on the summertime sea surface temperature in the western Indonesian Seas. *Journal of Geophysical Research: Oceans* 117: C09007. https://doi.org/10.1029/2012JC008162

Rigby CL, Barreto R, Carlson J, Fernando D, Fordham S, Francis MP, Herman K, Jabado RW, Liu KM, Marshall A, et al. 2019. *Alopias pelagicus*. *The IUCN Red List of Threatened Species* 2019: e.T161597A68607857. https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T161597A68607857.en

Sanjaya W. 2019. *Nusa Penida MPA learning site*. Version 1. Sanur: Coral Triangle Centre.

Siswanto S. 2008. Seasonal pattern of wind induced upwelling over Java-Bali Sea waters and surrounding area. *International Journal of Remote Sensing and Earth Sciences* 5: 46–56. http://dx.doi.org/10.30536/j.ijreses.2008.v5.a1228

Syamsudin F, Taniguchi N, Zhang C, Hanifa AD, Li G, Chen M, Mutsuda H, Zhu ZN, Zhu XH, Nagai T, Kaneko A. 2019. Observing internal solitary waves in the Lombok Strait by coastal acoustic tomography. *Geophysical Research Letters* 46(17–18): 10475–10483. https://doi.org/10.1029/2019GL084595