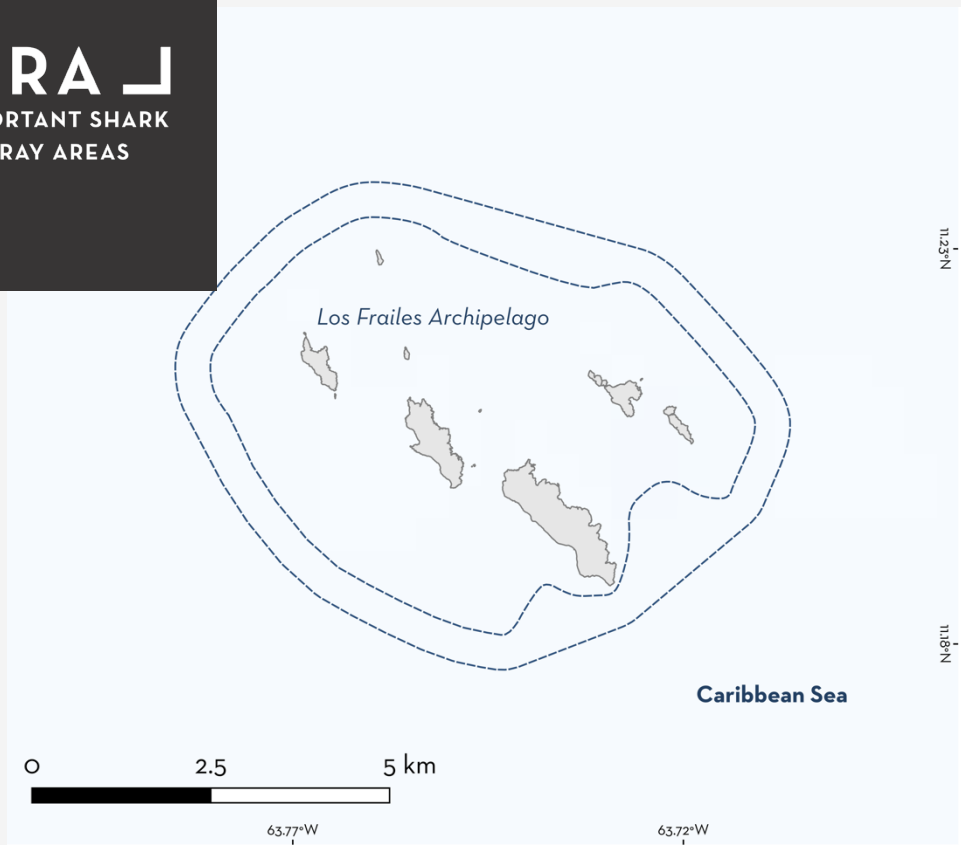
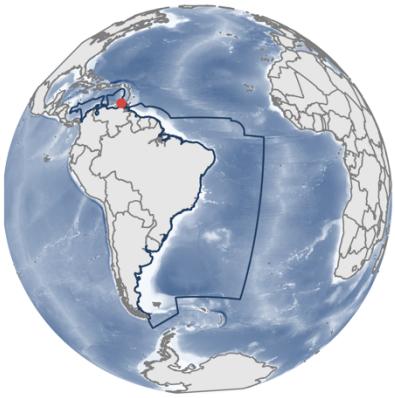
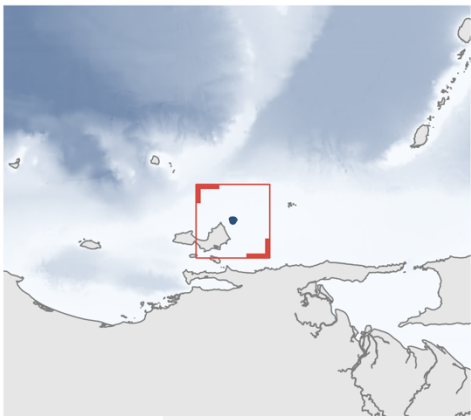
ISRA
IMPORTANT SHARK AND RAY AREAS







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

LOS FRAILES ARCHIPELAGO ISRA

South American Atlantic Region

VENEZUELA

0–30 metres

27.07 km²

SUMMARY

Los Frailes Archipelago is located ~15 km northeast off Margarita Island in Venezuela. It includes several islands and islets, and the habitat is mostly shallow waters, with a ~25 m deep channel between the island group. This area is influenced by seasonal upwelling driven by the Caribbean Current and trade winds. Within this area there are: **threatened species** and **reproductive areas** (Whitespotted Eagle Ray *Aetobatus narinari*).

CRITERIA

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

DESCRIPTION OF HABITAT

Los Frailes Archipelago is located ~15 km off the northeast coast of Margarita Island in Venezuela. The archipelago is a cluster of small, rocky islands surrounded by warm, nutrient-rich waters. Due to arid conditions, these islands are characterised by steep rocky cliffs, limited vegetation, and barren landscapes. The area is mostly shallow, with a ~25 m deep channel between the islands. The archipelago is influenced by seasonal upwelling driven by the westward flowing Caribbean Current and by trade winds, which brings cooler, nutrient-rich waters to the surface, enhancing biological productivity (Rueda-Roa & Muller-Karger 2013). The principal upwelling season is from December–April, with a secondary season from June–August (Rueda-Roa & Muller-Karger 2013).

This Important Shark and Ray Area is benthic and pelagic and is delineated from surface waters (0 m) to 30 m based on the bathymetry of 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 Endangered Whitespotted Eagle Ray (Dulvy et al. 2021).

SUB-CRITERION C1 – REPRODUCTIVE AREAS

Los Frailes Archipelago is an important reproductive area for one ray species.

The Whitespotted Eagle Ray is a target species for fisheries in this area. Local ecological knowledge of artisanal fishers showed that the species is being targeted with bottom-set gillnets exclusively around the full moon phase, spanning from one to six nights of fishing effort in the area per month when catches are highest (Cordovés et al. 2013; E Rodriguez-Acosta pers. obs. 2025). Generally, fishers in the Margarita Island region avoid this lunar phase when targeting other species of sharks and rays, since the moonlight can reveal the fishing gear (Tagliafico et al. 2012; Cordovés et al. 2013).

A historic study examined Whitespotted Eagle Ray captures (n = 1,352) from 413 fishery trips in this area over 29 months in 2005–2007 (Tagliafico et al. 2012). These bottom-set gillnets (200–500 m length, 8–10 m height) with an overnight soak time of 11–17 h often captured multiple individuals per net, with 23% of trips having no catch, 62% capturing 1–6 individuals, and 15% of trips capturing 7–21 individuals in a net. A subset of 321 males and 846 females were measured and examined. Around one third of females were mature, and of these, 25% were pregnant and 26% were in a post-gravid state, highlighting that this area is important for gestation and potentially for pupping. The average fecundity was 3.1 embryos. The 80 embryos measured ranged 10.1–44.5 cm disc width (DW), with a mean of 31.5 cm DW (Tagliafico et al. 2012). The size-at-birth for the species is 18–36 cm DW (Last et al. 2016), indicating that many of the embryos were near full-term. There was no clear seasonality in the reproductive cycle, but most Whitespotted Eagle Rays (72%) were captured during the first half of the year (Tagliafico et al. 2012). Additionally, local free-diving spearfishers mentioned repeatedly observing Whitespotted Eagle Rays giving birth in this area (Cordovés et al. 2013).

Contemporary evidence shows that pregnant Whitespotted Eagle Rays are still found in this area. Landing surveys in 2014 and 2024/25 found that multiple individuals are still captured together, with a mean of 3.8 and up to nine individuals landed per trip (E Rodríguez-Acosta pers. obs. 2025). Landing

surveys (n = 21) between January–December 2014 recorded 80 specimens captured in this area (E Rodríguez-Acosta & LA Zambrano unpubl. data 2025). Most captures (76%) were recorded between January–April. Of the 43 females, 31 (72%) were considered mature based on their body size measurements. The size-at-maturity for females is 135 cm DW (Tagliafico et al. 2012). One third of the adult females were pregnant (E Rodríguez-Acosta & LA Zambrano unpubl. data 2025). Large females, including pregnant individuals, were still being captured in the same area during December 2024 and January 2025 (E Rodríguez-Acosta pers. obs. 2025).

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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												
Aetobatus narinari	Whitespotted Eagle Ray	EN	0–60	X		X						

SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
RAYS		
Mobula birostris	Oceanic Manta Ray	EN
Myliobatis freminvillei	Bullnose Eagle Ray	VU
Rhinoptera brasiliensis	Brazilian Cownose Ray	VU

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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