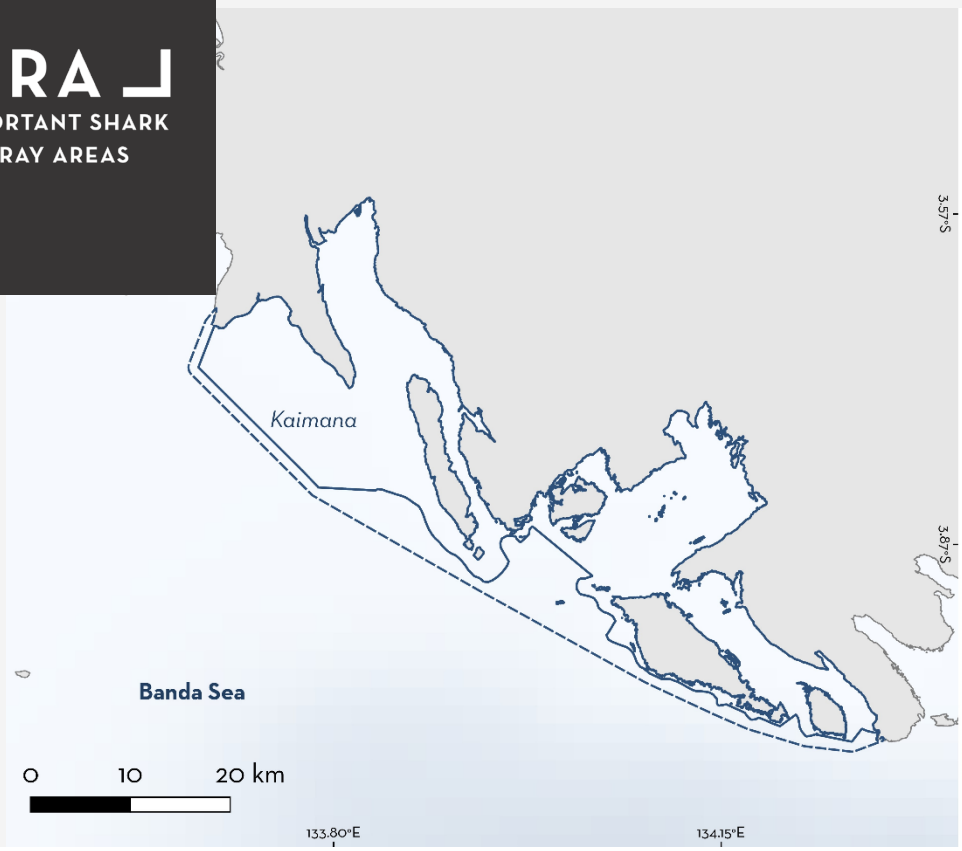
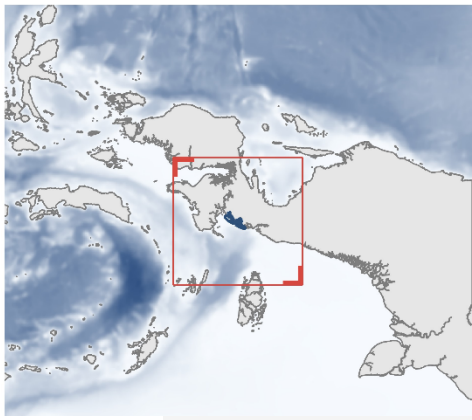
ISRA
IMPORTANT SHARK AND RAY AREAS





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

KAIMANA ISRA

Asia Region

INDONESIA

0–125 metres

793.1 km²

SUMMARY

Kaimana is located in West Papua, Indonesia. This area includes two main bays, Bitsyari and Triton Bays that are characterised by large amounts of freshwater input from a major river emptying into each. Both bays are ringed by fringing reefs and have numerous patch reefs rising up from the surrounding soft substrate. The area overlaps with the KKPD Kaimana marine protected area. Within this area there are: **threatened species** (e.g., Henry's Epaulette Shark *Hemiscyllium henryi*); **range-restricted species** (e.g., Indonesian Wobbegong *Orectolobus leptolineatus*); and **feeding areas** (Whale Shark *Rhincodon typus*).

CRITERIA

Criterion A – Vulnerability; Criterion B – Range Restricted; Sub-criterion C2 – Feeding Areas

DESCRIPTION OF HABITAT

Kaimana is located in West Papua, Indonesia. The marine waters of Kaimana regency are included in the Coral Triangle and the Bird's Head Seascape (Allen & Erdmann 2009; Veron et al. 2009; Mangubhai et al. 2012). The two main bays included in this area, Bitsyari and Triton Bays, have maximum depths of 50 and 100 m, respectively, and have large amounts of freshwater input from a major river emptying into each. Both bays are ringed by fringing reefs and have numerous patch reefs rising up from the surrounding soft substrate. These reefs are dominated by an assemblage of hard and soft corals and filter-feeding organisms including oysters, mussels, and tunicates.

The area overlaps with the KKPD Kaimana marine protected area.

This Important Shark and Ray Area is benthopelagic and is delineated from inshore and surface waters (0 m) to 125 m based on the bathymetry of the area.

ISRA CRITERIA

CRITERION A – VULNERABILITY

Two Qualifying Species considered threatened with extinction according to the IUCN Red List of Threatened Species regularly occur in the area. These are the Endangered Whale Shark (Pierce & Norman 2016) and the Vulnerable Henry's Epaulette Shark (VanderWright et al. 2021).

CRITERION B – RANGE RESTRICTED

This area holds the regular presence of the Spotted-belly Catshark, Henry's Epaulette Shark, and Indonesian Wobbegong as resident range-restricted species. These species occur year-round in the area and are regularly encountered during diving activities (MV Erdmann pers. obs. 2022).

Spotted-belly Catshark has been regularly reported in the area year-round since 2013 from individuals observed during underwater visual census, reports from artisanal fishers (MV Erdmann unpubl. data 2023), and from individuals observed and photographed by divers from Triton Bay Divers (L English pers. comm. 2022). This species is found on shallow reefs in Kaimana, and it has been observed directly three times in the past ten years and reported as regularly encountered by 12 different artisanal fishers interviewed in villages in Triton Bay (MV Erdmann unpubl. data 2024).

Henry's Epaulette Shark has been regularly reported in the area since 2005 from individuals sampled for taxonomic studies and underwater visual census. Triton Bay in Kaimana is the location from which the species was described (Allen & Erdmann 2008; Allen et al. 2016; Dudgeon et al. 2020; MV Erdmann unpubl. data 2023). This species is endemic to Kaimana and Fakfak coasts in West Papua, Indonesia (Allen et al. 2016; Dudgeon et al. 2020) and has a very limited area of occupancy (1,148 km^2; Vanderwright et al. 2021). Henry's Epaulette Shark is found in the area year-round and the dive operator in the area offers night dives and snorkel activities to observe this species (L English pers. comm. 2020).

Indonesian Wobbegong is regularly found in the area on the reefs of Triton Bay and the Iris Strait at depths of 3–10 m (MV Erdmann pers. obs. 2005–2024). The species was observed on 12 of 13 reef fish biodiversity surveys of the area between 2005 and 2023 (MV Erdmann unpubl. data 2024). Moreover, it is observed regularly by divers from the Triton Bay Divers Resort. The resort owner reports that it is found year-round in the area and is seen on nearly every dive at two of the sites in the Iris Strait (L English pers. comm. 2020).

These three species occur only in the Indonesian Sea Large Marine Ecosystem.

SUB-CRITERION C2 – FEEDING AREAS

Kaimana is an important feeding area for one shark species.

Whale Sharks are often found aggregating around *bagan* fisheries, where they commonly feed on the same baitfishes that the fishers are targeting. Although nowadays Whale Sharks are seen feeding mostly in proximity to this fishing gear, village elders from Maimai and Marsi confirm that Whale Shark aggregations were commonly seen feeding on baitfish in Bitsyari and Triton Bays before *bagan* fisheries started to operate around these waters in 2000. *Bagan* fisheries only operate in Bitsyari Bay, while Whale Sharks are commonly observed feeding on baitfish shoals in the adjacent Triton Bay and in the Iris Strait (MV Erdmann unpubl. data 2005–2023).

Photo-identification of Whale Sharks collected since 2011 has recorded 98 individuals that are observed year-round feeding on baitfish in Bitsyari Bay, Triton Bay, and Iris Strait. The average size of Whale Sharks (± SD) was 460 ± 200 cm total length (TL) (Konservasi Indonesia unpubl. data 2024), and 58% of identified individuals were either juvenile or sub-adult. The aggregation is male dominated (76%), typical for coastal aggregations of this species, and on most days, 4–10 individuals are observed (L English Triton Bay Divers pers. comm. 2022; Konservasi Indonesia unpubl. data 2024). An ongoing satellite telemetry study conducted at Kaimana since 2016 has revealed that Whale Sharks spent ~78% of their time inside the area (Konservasi Indonesia unpubl. data 2024).

Acknowledgments

Abdy W Hasan (Konservasi Indonesia), Abraham B Sianipar (Independent Researcher), Mochamad Iqbal Herwata Putra (Konservasi Indonesia), Ismail Syakurachman (Konservasi Indonesia), Edy Setyawan (Independent Researcher), Mark V Erdmann (Conservation International), and Emiliano García-Rodríguez (IUCN SSC Shark Specialist Group – ISRA Project) contributed and consolidated information included in this factsheet. We thank all participants of the 2024 ISRA Region 9 – Asia workshop for their contributions to this process.

This factsheet has undergone review by the ISRA Independent Review Panel prior to its publication.

This project was funded by the Shark Conservation Fund, a philanthropic collaborative pooling expertise and resources to meet the threats facing the world's sharks and rays. The Shark Conservation Fund is a project of Rockefeller Philanthropy Advisors.

Suggested citation

IUCN SSC Shark Specialist Group. 2024. Kaimana ISRA Factsheet. Dubai: IUCN SSC Shark Specialist Group.

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												
Atelomycterus erdmanni	Spotted-belly Catshark	LC	0–20		X							
Hemiscyllium henryi	Henry's Epaulette Shark	VU	0–28	X	X							
Orectolobus leptolineatus	Indonesian Wobbegong	NT	0–100		X							
Rhincodon typus	Whale Shark	EN	0–1,928	X			X					

SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
SHARKS		
Carcharhinus albimarginatus	Silvertip Shark	VU
Carcharhinus amblyrhynchos	Grey Reef Shark	EN
Carcharhinus leucas	Bull Shark	VU
Carcharhinus limbatus	Blacktip Shark	VU
Carcharhinus melanopterus	Blacktip Reef Shark	VU
Eucrossorhinus dasypogon	Tasselled Wobbegong	LC
Nebrius ferrugineus	Tawny Nurse Shark	VU
Sphyrna lewini	Scalloped Hammerhead	CR
Sphyrna mokarran	Great Hammerhead	CR
Stegostoma tigrinum	Indo-Pacific Leopard Shark	EN
Triaenodon obesus	Whitetip Reef Shark	VU
RAYS		
Aetobatus ocellatus	Spotted Eagle Ray	EN
Aetomylaeus vespertilio	Ornate Eagle Ray	EN
Glaucostegus typus	Giant Guitarfish	CR
Himantura uarnak	Coach Whipray	EN
Mobula birostris	Oceanic Manta Ray	EN
Mobula mobular	Spinetail Devil Ray	EN
Pastinachus ater	Broad Cowtail Ray	VU
Rhinoptera javanica	Javan Cownose Ray	EN
Rhina ancylostomus	Bowmouth Guitarfish	CR
Rhyncobatus australiae	Bottlenose Wedgefish	CR
Taeniura lymma	Bluespotted Lagoon Ray	LC
Taeniurops meyeni	Blotched Fantail Ray	VU
Urogymnus asperrimus	Porcupine Ray	EN
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

Allen GR, Erdmann MV. 2008. Two new species of bamboo sharks (Orectolobiformes: Hemiscylliidae) from western New Guinea. *Aqua, International Journal of Ichthyology* 13(3–4): 93–108.

Allen GR, Erdmann MV. 2009. Reef fishes of the Bird's Head Seascape Peninsula, West Papua, Indonesia. *Check List* 5: 587–628. https://doi.org/10.15560/5.3.587

Allen GR, Erdmann MV, White WT, Fahmi, Dudgeon CL. 2016. Review of the bamboo shark genus *Hemiscyllium* (Orectolobiformes: Hemiscyllidae). *Journal of the Ocean Science Foundation* 23: 51–97. http://dx.doi.org/10.5281/zenodo.164197

Dudgeon CL, Corrigan S, Yang L, Allen GR, Erdmann MV, Fahmi, Sugeha HY, White WT, Naylor GJP. 2020. Walking, swimming or hitching a ride? Phylogenetics and biogeography of the walking shark genus *Hemiscyllium*. *Marine and Freshwater Research* 71: 1107–1117. https://doi.org/10.1071/MF19163

Mangubhai S, Erdmann MV, Wilson JR, Huffard CL, Ballamu F, Hidayat NI, Hitipeuw C, Lazuardi ME, Muhajir, Pada D, et al. 2012. Papuan Bird's Head Seascape: Emerging threats and challenges in the global center of marine biodiversity. *Marine Pollution Bulletin* 64: 2279–2295. http://dx.doi.org/10.1016/j.marpolbul.2012.07.024

Pierce SJ, Norman B. 2016. *Rhincodon typus. The IUCN Red List of Threatened Species* 2016: e.T19488A2365291. https://dx.doi.org/10.2305/IUCN.UK.2016-1.RLTS.T19488A2365291.en

VanderWright WJ, Allen GR, Derrick D, Dudgeon CL, Erdmann MV, Sianipar A. 2021. *Hemiscyllium henryi* (amended version of 2020 assessment). *The IUCN Red List of Threatened Species* 2021: e.T195437A198885960. https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T195437A198885960.en

Veron JEN, Devantier LM, Turak E, Green AL, Kininmonth S, Stafford-Smith M, Peterson N. 2009. Delineating the Coral Triangle. *Galaxea* 11: 91–100 https://doi.org/10.3755/galaxea.11.91