

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

DAMPIER STRAIT ISRA

Asia Region

SUMMARY

Dampier Strait is located in West Papua, Indonesia. The area is situated in the Raja Ampat archipelago and composed of several islands, bays, and the strait that separates Waigeo from Batanta Island. The area has an extended shelf characterised by the presence of coral reefs. This area overlaps with the Raja Ampat and Northern Bird's Head Ecologically or Biologically Significant Marine Area, Waigeo Barat Key Biodiversity Area, and one marine protected area. Within this area there are: **threatened species** (e.g., Snaggletooth Shark *Hemipristis elongata*); **range-restricted species** (e.g., Spotted-belly Catshark *Atelomycterus erdmanni*); **reproductive areas** (e.g., Blacktip Reef Shark *Carcharhinus melanopterus*); **feeding areas** (e.g., Reef Manta Ray *Mobula alfredi*); **undefined aggregations** (e.g., Oceanic Manta Ray *Mobula birostris*); and the area sustains a **high diversity** of sharks (32 species).

CRITERIA

Criterion A - Vulnerability; Criterion B - Range Restricted;
Sub-criterion C1 - Reproductive Areas; Sub-criterion C2 - Feeding Areas;
Sub-criterion C5 - Undefined Aggregations; Sub-criterion D2 - Diversity

INDONESIA

0-100 metres

1,554.4 km²



DESCRIPTION OF HABITAT

Dampier Strait is located in West Papua, Indonesia and is part of the Raja Ampat archipelago. It sits within the Bird's Head Seascape and includes several islands (including the southern side of Gam), bays, and the strait that separates Waigeo, the largest island in the area, from Batanta Island (Allen & Erdmann 2009, 2024; Veron et al. 2009; Mangubhai et al. 2012). The area has an extended shelf characterised by the presence of coral reefs, mangroves, and seagrass beds.

Dampier Strait is strongly influenced by monsoon seasons. The northwest monsoon occurring from November to April is characterised by warm sea surface temperatures. In contrast, the southeast monsoon (May to October) is characterised by strong and continuous southeast winds that produce upwellings, resulting in an increase in primary productivity in coastal areas (Mangubhai et al. 2012).

The area overlaps with the Raja Ampat and Northern Bird's Head Ecologically or Biologically Significant Marine Area (EBSA; CBD 2024) and with Waigeo Barat Key Biodiversity Area (KBA 2024). In addition, it overlaps with the Taman Wisata Perairan Kepulauan Raja Ampat marine protected area.

This Important Shark and Ray Area is benthopelagic and is delineated from inshore and surface waters (0 m) to 100 m based on the bathymetry of the area.

ISRA CRITERIA

CRITERION A - VULNERABILITY

Thirty Qualifying Species considered threatened with extinction according to the IUCN Red List of Threatened Species regularly occur in the area. Threatened sharks comprise one Critically Endangered species, four Endangered species, and eight Vulnerable species; threatened rays comprise four Critically Endangered species, nine Endangered species, and four Vulnerable species (IUCN 2024).

CRITERION B - RANGE RESTRICTED

Dampier Strait holds the regular presence of Raja Ampat Epaulette Shark and Spotted-belly Catshark as resident range-restricted species. These species occur year-round in the area and are regularly encountered during underwater visual census and reported by local artisanal fishers (based upon observations and data from 2001-2023).

Raja Ampat Epaulette Shark has been reported continuously in the area between 2001-2023 based on underwater visual census, dive operator surveys, and artisanal fisher interviews and is found predominantly on shallow reef flats with seagrass beds and scattered coral bommies, though it is also found in mangroves and on coral reefs (Allen et al. 2016). Though the species is found throughout Raja Ampat, Dampier Strait holds an exceptionally high abundance of Raja Ampat Epaulette Shark due to the well-developed reef flats typical in this area, particularly around Gam, Arborek, Mansuar, Saonek, Kri, and the Fam Islands (E Setyawan pers. obs. 2023; Konservasi Indonesia unpubl. data 2021). Previously, estimated abundances in Raja Ampat were ~200 individuals/km² across Raja Ampat (VanderWright et al. 2021), but recent surveys in 2023-2024 in Dampier Strait have revealed abundances of 1,030-2,340 individuals/km², which is 5-10 times higher than the average abundance in Raja Ampat (Elasmobranch Project Indonesia unpubl. data 2023; Konservasi Indonesia unpubl. data 2024).

Spotted-belly Catshark has been regularly reported in the area between 2001–2023 based on underwater visual census, dive operator surveys, and artisanal fisher interviews, and is found on shallow reefs in Dampier Strait. This species has been observed four times in the past five years based upon a total of seven 1-hr night dive surveys (M Erdmann unpubl. data 2024). It has also been reported by artisanal fishers from 13 of 15 villages surveyed in Dampier Strait in 2018 (M Erdmann unpubl. data 2018).

These two species are restricted to the Indonesian Seas Large Marine Ecosystem.

SUB-CRITERION C1 – REPRODUCTIVE AREAS

Dampier Strait is an important reproductive area for two shark and one ray species.

At the Papua Diving Resorts at Cape Kri in the central Dampier Strait, the regular presence of aggregations of ~20 (50 maximum) neonate/young-of-the-year (YOY) and juvenile Blacktip Reef Sharks (based on their small size) has been observed since 1995 on the reef flat year-round (M Ammer pers. comm. 2024). In addition, these sharks are also observed in Sorido Bay in Kri Island where pregnant females are regularly observed (M Erdmann pers. obs. 2023). All seven of the major dive resorts operating in Dampier Strait also report continuous year-round presence of 10–50 neonate and juvenile Blacktip Reef Sharks under their jetties and around their water bungalows on sandy substrates or near coral reefs and seagrass beds (M Erdmann unpubl. data 2024).

Dampier Strait is an important mating and egg-laying area for Raja Ampat Epaulette Shark. Mating is observed regularly by dive operators in shallow seagrass beds at night (M Ammer pers. comm. 2023), and targeted surveys in 2015 and 2023 recorded neonates and juveniles on all 10 reef sites surveyed (M Erdmann unpubl. data 2015; Elasmobranch Project Indonesia unpubl. data 2023). Though the home range of individuals has not yet been formally investigated, it seems that all nine species of epaulette sharks have limited home ranges and likely mate and lay eggs on the same reefs where they hatched (Allen et al. 2016; M Erdmann pers. obs. 2002–2024). Preliminary results from an ongoing acoustic tagging study of Raja Ampat Epaulette Sharks seem to support this as tagged individuals have remained on the same reef flat for the three-month period between January and March 2024 (E Setyawan unpubl. data 2024).

Long-term monitoring of the Reef Manta Ray population in the area documented 71 pregnant females from 2004 to 2019 based on the presence of extended abdomens (Setyawan et al. 2020, 2022). One of the females was observed with four consecutive pregnancies between 2013–2016, and five pregnancies in seven years. In addition, 15 females presented at least two consecutive-year pregnancies. Other females were observed with recent mating scars (Setyawan et al. 2020). Courtship behaviour (mating trains) has also been reported in the area between November–March with a peak in January and February (Setyawan et al. 2020). Potential Reef Manta Ray nursery areas have been identified in two sites in Dampier Strait: Hol Gam lagoon and Fam Islands. One to three YOY were observed in Hol Gam lagoon in 2005 during three different trips (E Setyawan pers. obs. 2024). YOY were defined as individuals <200 cm disc width (DW) as previously reported for other sites in Indonesia (Germanov et al. 2019) which is close to the known size-at-birth for this species (130–150 cm DW; Last et al. 2016). Between 2008–2018, 14 YOY (160–200 cm DW) were observed in Hol Gam lagoon based on aerial surveys, underwater visual census, and video footage from underwater cameras (Setyawan et al. 2020). Some of these individuals were recorded repeatedly in the lagoon and moving back and forth to feeding areas and cleaning stations in the area (Setyawan et al. 2020). For Fam Islands, 40 YOY (160–200 cm DW) were identified in reef areas between 2016–2019 with these small individuals observed in all the surveys during that period (Setyawan et al. 2020). These YOY represented 32% of individuals identified in Fam Islands. In addition, 42 juveniles (210–

240 cm DW) were also identified. YOY and juvenile Reef Manta Rays represented ~60% of the total number of individuals identified in Dampier Strait (Setyawan et al. unpubl. data. 2023).

SUB-CRITERION C2 – FEEDING AREAS

Dampier Strait is an important feeding area for two ray species.

Aggregations of Reef Manta Rays were regularly documented feeding on the surface between 2004–2019 (Setyawan et al. 2020). These feeding aggregations were commonly composed of 25–50 individuals with a larger aggregation of 112 individuals recorded on one occasion (Setyawan et al. 2020). Feeding aggregations occur from December to March at five sites around Arborek (Manta Ridge, Irwor Inbekya, Mambarayup, Hol Gam, and Arborek Island) while in Fam Islands (Andau Besar, Andau Kecil, Meos Ba, Meoskor, Fam, and Nafsi) they occur year-round with a peak between June–October (Setyawan et al. 2020). This seasonality is related to upwelling events produced by seasonal monsoons that increase primary productivity in the waters of Dampier Strait (Setyawan et al. 2018).

Feeding aggregations of Oceanic Manta Rays (10–15 individuals) were regularly observed around Arborek Island between 2019–2022, mostly in February and March, and frequently in association with feeding Omura’s Whales *Balaenoptera omurai* (M Izuan pers. comm. 2022). Additionally, feeding aggregations of Oceanic Manta Rays (10–20 individuals) have been regularly observed around Batanta Island from 2015–2023, generally during December–April (M Erdmann pers. obs. 2015–2023). For both aggregations observed at Arborek and Batanta islands, Oceanic Manta Rays feed on dense patches of ‘krill’ (not identified to species, but larger, pink-colored crustacean zooplankton measuring 5–10 mm TL) that are abundant during the northwest monsoon (M Erdmann pers. obs. 2015–2023).

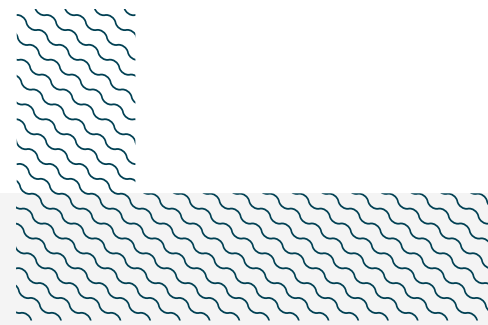
SUB-CRITERION C5 – UNDEFINED AGGREGATIONS

Dampier Strait is an important area for undefined aggregations of two ray species.

Regular monitoring between 2011–2022 in Dampier Strait revealed that this area hosts eight cleaning stations for Reef Manta Rays and three for Oceanic Manta Rays. Within the Dampier Strait, aggregations of both species can be found at cleaning stations year-round, with a peak from December to March (Setyawan et al. 2020). The majority of the cleaning stations also serve as feeding sites and both species constantly switch between cleaning and feeding. For Reef Manta Rays, 515 individuals have been identified (Setyawan et al. 2022). Aggregations range from 3 to 30 individuals and are found at depths of 5–15 m (E Setyawan pers. obs. 2020). For Oceanic Manta Rays, aggregations range from 3 to 15 individuals and are found at depths of 15–20 m (E Setyawan pers. obs. 2020).

SUB-CRITERION D2 – DIVERSITY

Dampier Strait sustains a high diversity of Qualifying Species (32 species). This exceeds the regional diversity threshold (31 species) for the Asia Region. The regular presence of Qualifying Species has been documented by frequent observations in diving operations and visual census by scientists and through citizen science (Allen & Erdmann 2009, 2024; M Erdmann et al. unpubl. data 2002–2024).



Acknowledgments

Mochamad Iqbal Herwata Putra (Konservasi Indonesia), Edy Setyawan (Independent Researcher), Mark V Erdmann (Conservation International), Abdi W Hasan (Konservasi Indonesia), Abraham B Sianipar (Independent Researcher), Ismail Syakurachman (Konservasi Indonesia), Calvin S Beale (Murdoch University), 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.

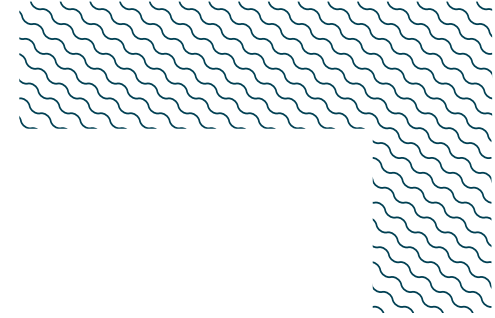
This project was funded by the Shark Conservation Fund, a philanthropic collaborative pooling expertise and resources to meet the threats facing the world's sharks and rays. The Shark Conservation Fund is a project of Rockefeller Philanthropy Advisors.

Suggested citation

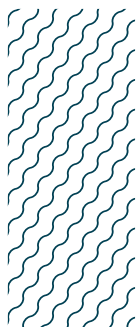
IUCN SSC Shark Specialist Group. 2024. Dampier Strait ISRA Factsheet. Dubai: IUCN SSC Shark Specialist Group.

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												
<i>Atelomycterus erdmanni</i>	Spotted-belly Catshark	LC	0-62		X							
<i>Carcharhinus albimarginatus</i>	Silvertip Shark	VU	0-800	X								
<i>Carcharhinus amblyrhynchos</i>	Grey Reef Shark	EN	0-280	X								
<i>Carcharhinus amboinensis</i>	Pigeye Shark	VU	0-60	X								
<i>Carcharhinus falciformis</i>	Silky Shark	VU	0-1,112	X								
<i>Carcharhinus leucas</i>	Bull Shark	VU	0-256	X								
<i>Carcharhinus limbatus</i>	Blacktip Shark	VU	0-140	X								
<i>Carcharhinus melanopterus</i>	Blacktip Reef Shark	VU	0-75	X		X						X
<i>Hemipristis elongata</i>	Snaggletooth Shark	EN	0-130	X								
<i>Hemiscyllium freycineti</i>	Raja Ampat Epaulette Shark	NT	0-30		X	X						
<i>Nebrius ferrugineus</i>	Tawny Nurse Shark	VU	0-70	X								
<i>Rhincodon typus</i>	Whale Shark	EN	0-1,928	X								
<i>Sphyrna lewini</i>	Scalloped Hammerhead	CR	0-1,043	X								
<i>Stegostoma tigrinum</i>	Indo-Pacific Leopard Shark	EN	0-62	X								



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		
<i>Rhynchobatus australiae</i>	Bottlenose Wedgefish	CR	0-60	X										
<i>Taeniurops meyeri</i>	Blotched Fantail Ray	VU	0-439	X										
<i>Urogymnus asperrimus</i>	Porcupine Ray	EN	1-30	X										
<i>Urogymnus granulatus</i>	Mangrove Whipray	EN	0-85	X										

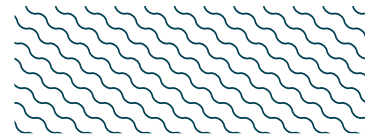


SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
SHARKS		
<i>Chiloscyllium punctatum</i>	Brownbanded Bambooshark	NT
<i>Eucrossorhinus dasypogon</i>	Tasselled Wobbegong	LC
<i>Prionace glauca</i>	Blue Shark	NT
RAYS		
<i>Taeniura lymma</i>	Bluespotted Lagoon Ray	LC

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.





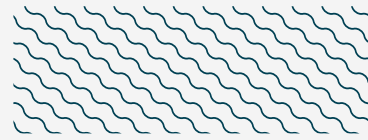
SUPPORTING INFORMATION

There are additional indications that Dampier Strait may be an important reproductive area for one ray species and undefined aggregations of two ray species

A new dive site at the mouth of Kabui Bay in the northern part of the area where divers started to operate in 2023 has yielded four encounters with Bowmouth Guitarfish, including two videos of a male actively pursuing a female - one in May 2023 and a second in June 2023. More information is needed to confirm the regularity of this behaviour and the reproductive importance of the area for this species.

Around 50 Shorthorned Pygmy Devil Ray have been observed aggregating and cruising around coral reefs near Arborek Island on two different occasions between 2019 and 2022 (Gita pers. comm. 2022). More information is needed to confirm their regularity and the nature of these aggregations.

Large aggregations of 100-500 Javan Cownose Ray have been observed in the western Dampier Strait three times between 2012-2022 by local dive operators during helicopter flights over the region (M Ammer pers. comm. 2022). More information is needed to confirm their regularity and the nature of these aggregations.



REFERENCES

- Allen GR, Erdmann MV. 2009. Reef fishes of the bird's head peninsula, West Papua, Indonesia. *Check List* 5: 587–628. <https://doi.org/10.15560/5.3.587>
- Allen GR, Erdmann MV. 2024. *Reef fishes of the East Indies, second edition*. Singapore: Conservation International.
- Allen GR, Erdmann MV, White WT, Dudgeon CL. 2016. Review of the bamboo shark genus *Hemiscyllium* (Orectolobiformes: Hemiscyllidae). *Journal of the Ocean Science Foundation* 23: 51–97.
- Convention on Biological Diversity (CBD). 2024. Raja Ampat and Northern Bird's Head. Ecologically or Biologically Significant Areas (EBSAs). Available at <https://chm.cbd.int/database/record?documentID=237857> Accessed February 2024.
- Germanov ES, Bejder L, Chabanne DB, Dharmadi D, Hendrawan IG, Marshall AD, Pierce SJ, van Keulen M, Loneragan NR. 2019. Contrasting habitat use and population dynamics of reef manta rays within the Nusa Penida Marine Protected Area, Indonesia. *Frontiers in Marine Science* 6: 215. <https://doi.org/10.3389/fmars.2019.00215>
- IUCN. 2024. The IUCN Red List of Threatened Species. Version 2024. Available at: <https://www.iucnredlist.org> Accessed February 2024.
- Key Biodiversity Areas (KBA). 2024. Key Biodiversity Areas factsheet: Waigeo Barat. Available at: <https://www.keybiodiversityareas.org/site/factsheet/26452> Accessed February 2024
- Last PR, White WT, de Carvalho MR, Séret B, Stehmann MFW, Naylor GJP. 2016. *Rays of the world*. Clayton South: CSIRO Publishing.
- 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>
- Setyawan E, Sianipar AB, Erdmann MV, Fischer AM, Haddy JA, Beale CS, Lewis SA, Mambrasar R. 2018. Site fidelity and movement patterns of reef manta rays (*Mobula alfredi*: Mobulidae) using passive acoustic telemetry in northern raja Ampat, Indonesia. *Nature Conservation Research* 3: 17–31. <https://doi.org/10.24189/ncr.2018.043>
- Setyawan E, Erdmann MV, Lewis SA, Mambrasar R, Hasan AW, Templeton S, Beale CS, Sianipar AB, Shidqi R, Heuschkel H et al. 2020. Natural history of manta rays in the Bird's Head Seascape, Indonesia, with an analysis of the demography and spatial ecology of *Mobula alfredi* (Elasmobranchii: Mobulidae). *Journal of the Ocean Science Foundation* 36: 49–83. <http://dx.doi.org/10.5281/zenodo.4396260>
- Setyawan E, Stevenson BC, Erdmann MV, Hasan AW, Sianipar AB, Mofu I, Putra MIH, Izuan M, Ambafen O, Fewster RM, et al. 2022. Population estimates of photo-identified individuals using a modified POPAN model reveal that Raja Ampat's reef manta rays are thriving. *Frontiers in Marine Science* 9: 1014791. <https://doi.org/10.3389/fmars.2022.1014791>
- VanderWright WJ, Allen GR, Dudgeon CL, Derrick D, Erdmann MV, Sianipar A. 2021. *Hemiscyllium freycineti* (amended version of 2020 assessment). *The IUCN Red List of Threatened Species* 2021: e.T199932A198884880. <https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T199932A198884880.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>