

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

MOLOKINI CRATER ISRA

New Zealand & Pacific Islands Region

SUMMARY

Molokini Crater is located west of Maui, in the Hawaiian Islands of the United States of America. The area encompasses Molokini Islet – the rim of a volcanic crater. It is characterised by sandy patches, coral, and basaltic boulders. The outer crest is influenced by strong currents from the Alalakeiki Channel, and the inner cove is protected from major ocean swells. This area overlaps with the Molokini Shoal Marine Life Conservation District. Within this area there are: **threatened species** (e.g., Whitetip Reef Shark *Triaenodon obesus*); **reproductive areas** (e.g., Grey Reef Shark *Carcharhinus amblyrhynchos*); **resting areas** (Whitetip Reef Shark); and **undefined aggregations** (Grey Reef Shark).

CRITERIA

Criterion A – Vulnerability; Sub-criterion C1 – Reproductive Areas;
Sub-criterion C2 – Feeding Areas; Sub-criterion C5 – Undefined Aggregations

HAWAII

0-90 metres

1.41 km²



DESCRIPTION OF HABITAT

Molokini Crater is located in the Alalakeiki Channel, ~4.82 km west of Makena, Maui, in Hawaii – an island state of the United States of America. The area includes the range around Molokini Islet – a rim of a volcanic crater – and includes Kahuluele Bay on the inner cove (Szuster & Needham 2010). It also encompasses the pelagic-facing range off the southern rim which is characterised by a slope (Friedlander et al. 2016). The inside of the crater reaches depths of 30 m and is protected from ocean swells (Friedlander et al. 2016). The area is also characterised by sand patches, coral, and basaltic boulders (SHADR 2024a). The outside of Molokini Crater is influenced by strong currents from the Alalakeiki Channel.

This Important Shark and Ray Area overlaps with the Molokini Shoal Marine Life Conservation District (SHADR 2024b).

This Important Shark and Ray Area is benthic and pelagic and is delineated from inshore and surface waters (0 m) to 90 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 Grey Reef Shark (Simpfendorfer et al. 2020a) and the Vulnerable Whitetip Reef Shark (Simpfendorfer et al. 2020b).

SUB-CRITERION C1 – REPRODUCTIVE AREAS

Molokini Crater is an important reproductive area for two shark species.

Recreational divers regularly observe neonate/young-of-the-year (YOY) Grey Reef Sharks in this area between June–September (J Glazner, M Rudenko, & B Anderson pers. obs. 2024). Between 2012–2016, recreational dives were undertaken year-round (~300 dives per year). Between 2017–2024, ~10 dives were undertaken each year, in different seasons (J Glazner, M Rudenko, B Anderson pers. obs. 2024). Grey Reef Sharks at this life stage were observed on 50% of dives, mostly between June–September. Grey Reef Sharks were observed in aggregations of up to 35 individuals (mean = 3 individuals) and were visually estimated to measure between 60–150 cm total length (TL). Most (80%) of the individuals were estimated to be 60–90 cm TL, classifying them as neonates or YOY considering their reported size-at-birth of 45–60 cm TL (Ebert et al. 2021). Grey Reef Sharks at these life stages use this area seasonally, with most being observed between June–September. Outside of this period, there are only sightings of adults recorded, either solitary or up to three individuals (J Glazner pers. obs. 2024).

Recreational divers regularly observe neonate/YOY Whitetip Reef Sharks in this area (J Glazner, M Rudenko, & B Anderson, pers. obs. 2024). Between 2012–2016, recreational dives were undertaken year-round (~300 dives per year). Between 2017–2024, ~10 dives were undertaken each year, in different seasons (J Glazner, M Rudenko, & B Anderson, pers. obs. 2024). Whitetip Reef Sharks at this life stage were observed on 85% of dives, mostly between May–July (J Glazner, M Rudenko, & B Anderson pers. obs. 2024). Whitetip Reef Sharks were observed in aggregations of up to 10 individuals (mean n = 2). Size of the individuals in this area was visually estimated between 60–150 cm TL. Approximately half of the Whitetip Reef Sharks observed in this area are considered

neonates/YOY as are visually estimated to measure 60–90 cm TL (J Glazner, M Rudenko, & B Anderson pers. obs. 2024). The size-at-birth of this species is 52–60 cm TL (Ebert et al. 2021). Aggregations of ~35 Whitetip Reef Shark pups have also been photographed, with the dive centre reporting that pregnant females give birth to 6–8 pups in this area in August (Island Style Diving 2024). Additionally, the regular and predictable observation of early life stage Whitetip Reef Sharks is reported in recreational activities within the no-take zone which has been delineated within this area (Szuster & Needham 2010).

SUB-CRITERION C3 – RESTING AREAS

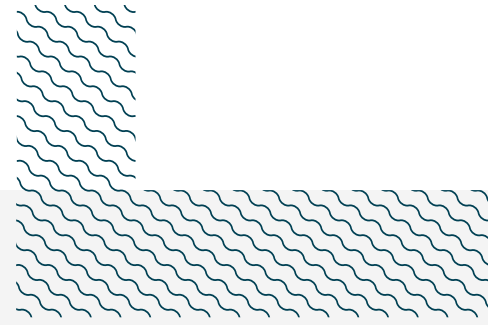
Molokini Crater is an important resting area for one shark species.

Whitetip Reef Sharks are regularly observed resting under ledges at both edges of the crater and on the sand inside caves in this area (J Glazner, M Rudenko, & B Anderson pers. obs. 2024). Between 2012–2016, recreational dives were undertaken year-round (~300 dives per year). Between 2017–2024, ~10 dives were undertaken each year, in different seasons (J Glazner, M Rudenko, & B Anderson pers. obs. 2024). Sightings occurred year-round and groups of up to five individuals resting together were recorded. Resting was the most frequently observed behaviour for this species and was observed during the day (07:00–11:00) (J Glazner, M Rudenko, & B Anderson pers. obs. 2024), which is typical of this primarily nocturnal hunter (Randall 1977). Recreational divers estimate that resting behaviour is observed in 80% of all sightings of the species within this area (J Glazner, M Rudenko, & B Anderson pers. obs. 2024). Additional observations of resting Whitetip Reef Sharks have been shared online by recreational divers, where individuals rest on top of the reef as well as under caves which characterise this area. Whitetip Reef Sharks rest on the inside of the crater, which is protected from major ocean swells (Friedlander et al. 2016). Although Whitetip Reef Sharks are known to rest elsewhere, this area has more frequently recorded observations of resting groups compared to adjacent areas that were surveyed by recreational divers.

SUB-CRITERION C5 – UNDEFINED AGGREGATIONS

Molokini Crater is an important area for undefined aggregations of one shark species.

Grey Reef Sharks are regularly and predictably observed using a cleaning station in this area, at a site within the area known locally as ‘backwall’. Grey Reef Sharks are cleaned by the Hawaiian Cleaner Wrasse *Labroides phthiophagus* outside of the crater on the wall at ~23 m in the area. Between 2012–2016, recreational dives were undertaken year-round (~300 dives per year). Between 2017–2024, ~10 dives were undertaken each year, in different seasons (J Glazner, M Rudenko, & B Anderson pers. obs. 2024). This behaviour was reported on an estimated 15% of dives when the species was observed (J Glazner, M Rudenko, & B Anderson pers. obs. 2024).



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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												
<i>Carcharhinus amblyrhynchos</i>	Grey Reef Shark	EN	0-280	X		X				X		
<i>Triaenodon obesus</i>	Whitetip Reef Shark	VU	0-330	X		X		X				

SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
SHARKS		
<i>Rhincodon typus</i>	Whale Shark	EN
RAYs		
<i>Aetobatus ocellatus</i>	Spotted Eagle Ray	EN
<i>Mobula alfredi</i>	Reef Manta 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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